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Dr. George David Stewart

SOME of our prominent physicians have come from the less-known parts of the world. George David Stewart, for instance, was born in Cumberland County, Nova Scotia, December 28, 1862, the son of Daniel and Mary J. (McCallum) Stewart.

He received his preliminary education in his own country, at Teacher's College, Truro, N. S., and at St. Francis Xavier College. But when he took up his medical studies he came to the United States and entered Bellevue Hospital Medical College, of New York University, from which he was graduated as a Doctor of Medicine in 1889.

The next year he married Ida M. Robb, of Antigonish, Nova Scotia, and entered Bellevue Hospital as an interne.

That Dr. Stewart's work was of a high order is attested by the fact that, after some years, he was made Professor of Surgery in Bellevue Hospital Medical College.

The Doctor has been a helpful if not exceedingly prolific contributor to medical literature, his papers dealing with surgical subjects, especially gastroenterology.

At its recent session, at Toronto, the American College of Surgeons testified to Dr. Stewart's professional accomplishments by electing him their president for the coming year.

PHYSIOLOGY, THE BASIS OF MEDICINE

As physicians, our primary concern is to restore to normal conditions a human organism whose functions are more or less seriously disturbed, in one way or another.

To be sure, it is important for us to know anatomy, but this knowledge is valuable to us only as it enables us to correct perverted functions. The patient with six fingers or toes, with dextrocardia, with a single horseshoe kidney, may go through life without experiencing any interference with his activities as a result of his anatomical peculiarities. It is only when these interfere with his functions or with our efforts to correct some maladjustment to his environment that such matters become important to us as *physicians*.

It appears obvious that we must have a broad and deep knowledge of physiology—the science of normal human functions—before we can readily and accurately recognize and evaluate those departures from the normal which we recognize as disease.

At present, a large part of the time of the undergraduate and the graduate student in medicine is being devoted to the study of pathology—the science of perverted structure and function—and such study is valuable and necessary; but it is impossible to gain a balanced and accurate conception of abnormal conditions in the structures or in their workings unless we have a clear idea of how these structures look and work when they are in a normal condition.

It is, moreover, entirely possible to overdo this matter of pathology and, as Dr. Roy Lyman Wilbur says, we devote so much time to the study of the *secretions* and *extracts* of patients that we lose sight of the fact that they are *human beings*, appealing to us for assistance in *getting well*, and not mere aggregations of “material” to facilitate our delightful and profitable excursions into the realms of pure science.

Too many practitioners have a tendency to throw aside or skim over the articles in the journals dealing with the newest discoveries in physiology, and to neglect the perusal of their textbooks on this subject, for the more “practical” study of treatises on the application of medical and surgical therapeutic measures. These latter studies are, of course, essential—they are the very superstructure of our professional edifice—but if the foundations upon which they are builded are insecure, what can we expect when the

storms of doubt and difficulty assail the walls?

As undergraduates, we learned the normal operations of the respiratory, the digestive, the renal, the cutaneous and other systems of the body, *as they were then known*. How much of that knowledge can we now recall, sufficiently well to depend upon it in making a diagnosis? How much of it has been rendered obsolete by recent investigations? How familiar are we with the functions of the liver, the nervous control of the heart, or the endocrine organs, as they are understood today?

Then, again, how far have we correlated the findings of the laboratory and the textbooks on physiology with the things we see in the examining room and at the bedside? How clearly are we convinced that, if a patient is *conscious* of the operation of his organs they are not functioning in a perfectly normal manner? How much, in fact, do we know about *clinical physiology*?

Nor must we get the idea that all of physiology can be learned in the laboratory, by the study of decapitated cats and hepatectomized dogs. Man does not consist wholly of the physical machinery which corresponds to that of the lower animals and which can be investigated in the dead-house. He has an emotional and a mental nature which, we are now coming to realize, can, and frequently *do* produce as profound alterations in his adequacy to cope with his environment as those brought about by the causes which we can demonstrate with the microscope and the test tube.

If, then, we would be physiologists in the broader and more modern sense, we must be, to a considerable degree, psychologists and sociologists as well as laborers in the various laboratories of physical and chemical research.

We must even go so far as to recognize that those intangible and, at present, ill-defined influences which, for want of a better word, we call “spiritual”, may exert profound effects upon a person's well being, and we must diligently study to find out if, perchance, we can not, in some manner, so modify these influences as to enable the man to return to a state of equilibrium.

The study of physiology, as seen by the light of the twentieth century, is, indeed, a tremendous and a noble undertaking, and the mastery and application of even a part of its teachings is an adequate and worthy endeavor to engage a man's lifetime for, if seen with the eye of understanding and

applied by one whose heart is warmed by human sympathy, these teachings will enable us to alleviate the sum of human misery, to forward the march of human progress and, perhaps, to come a bit nearer to understanding that stupendous mystery which we call God.

Say, what does not good association do for men? It removes the dullness of their intellects; it sprinkles truth in their speech; it gains the highest honors for them; expels sin from them; it purifies their mind, and spreads their fame towards all quarters.—Sanskrit Proverb.

THE LURE OF APRIL

For months the trees have been bare, and the earth, too, has been bare or covered with snow. No birds have cheered us with their warblings, nor have flowers—except those in the florists' windows, at fabulous prices—delighted our eyes. In the cities the air has been noxious and semi-opaque with fumes and soot. In the country the cold or the sloppy footing have robbed a ramble of all its attractions.

And we, sitting in the consulting room or at the bedside or attending to the needs of the sick and suffering in the hospitals, have been glad that we scarce had time to look out upon the leaden skies or sniff the polluted or freezing air.

But now the world is stirring again in our temperate clime. The same old life, which we have known all the time was not dead but merely held in temporary suspension by the boreal winds, is flowing into all living things once more and reanimating them. Buds are swelling on the trees. Hepaticas are in bloom among the dead leaves in the woods. The robins and the catbirds are talking to us again. Away from the reek of the factories, the air is full of the intoxicating but indescribable aroma of the quickening world.

Let us not forget that we are, among other things and by virtue of our physical bodies, sons of old Mother Earth. Let us go out and lie close to her life-giving bosom for a while and renew our enthusiasm and our youthful excitements and emotionalisms and our allegiance to her who is the mother of us all.

We owe something to our patients—something more than merely being at our desks at the same old hours and in the same old offices, day after day. We owe them keen eyes and steady hands and quick and active brains. Can we give them these when our bodies are sluggish from the physical inactivity of the bleak and inclement months

and our minds stale and sour from incessant and pressing routine, even though it has been an intriguing and worthy labor?

In justice to our patients, our families, our associates and ourselves, let us yield to the lure of April and go forth into the open places in this keen spring weather, to fill our nostrils and our lungs with the vivifying airs and our minds and hearts with the spirit of perpetual and never-failing *renewal* for a little while, and we will return to our duties, better doctors, better husbands and fathers and better *men* because we have *consciously* participated in the renaissance of life which is coming to all of God's good world.

If one hopes to receive an answer to a prayer for physical betterment, he must take to the praying place a body and a mind rendered clean and keen and receptive.—Dr. W. V. Gage.

HEADACHE

There is probably no subjective symptom so frequently offered as a reason for seeking medical advice as is headache.

We know that headache is not a *disease*, and most of us realize that it is a symptom of so many and varied abnormal conditions that the very breadth of the field of investigation which opens before us when a patient mentions this symptom is almost enough to paralyze our initiative and cause us to compromise with our consciences by prescribing simply an analgesic for temporary relief.

Believing that much practical good will result from a thorough discussion of this subject we are starting, this month, a series of articles by workers in various special fields, explaining how headache is related to their specialty; how its cause may be discovered and what remedies will bring about its *cure*—not merely momentary relief. We hope that these articles will run through the rest of the year, and possibly longer.

But the specialists are not the only men who can help us. Among our readers must be hundreds who have encountered headaches due to unusual and unexpected causes and who have developed their own methods for dealing successfully with those causes, or with the commoner ones which we meet every day. *We want to hear from those men*, with full details, briefly told, of how they made the diagnosis and treated the case.

If every physician in our group who has dealt *successfully* with headache, and *knows how he did it*, will do his duty by contributing to this study, the present volume will contain such a symposium on this universal

and distressing symptom that, when bound, it will serve as a reference work on the subject for years to come.

At the end of the year or of the series, we will endeavor to sum up the findings and conclusions of the various authors and give you the meat of the nut. Medical science has gone far since the early days of the "headache powder", but none of us has learned to apply all he knows. Let us have *more light*, and more directions for using it.

Education is what one person can teach another. Culture is the wide and sympathetic application of what education has given us.—Annie Besant.

VOMITING OF PREGNANCY

A knowledge of the etiology of vomiting in pregnancy and the working out of a rational therapy are developments of the last generation. In Lusk's "Science and Art of Midwifery", published in 1890, no attempt was made even to suggest the cause of this condition, beyond the observation that habitual constipation aggravates it, and the variety of remedies suggested is such as to indicate that the eminent author of that work was wholly in the dark as to its etiology and the principles of its management.

Jewett, whose "Practice of Obstetrics" appeared in 1901, began to have a glimmering. Though he believed that this symptom was largely due to reflex nerve stimulation resulting from pressure and the changed relations of the pelvic organs, he hinted that there was some factor in the pregnant condition which rendered the nerve centers hypersensitive, and that "autointoxication" might play a part in the severer cases.

We now recognize that vomiting in pregnancy is the result of a toxemia—a perversion of the metabolic processes—and we are seeking methods of prevention as well as of cure when it has developed, with a considerable measure of success. There is, however, still much to be learned.

We are coming to believe that this symptom is due to the absorption of certain protein substances resulting from metabolism, and is in the nature of an anaphylactic reaction, though just how the reactions come about we are not yet certain. We watch the indices of body chemistry—the urine, blood chemistry and blood pressure—with great care and can frequently head off trouble.

Fortunately, the majority of pregnant women pass through the early months of

gestation with little or no discomfort. There may be slight morning sickness, perhaps a few attacks of vomiting, and that is all. In these women it seems that the organism rapidly accustoms itself to the protein split-products of placental metabolism. The proper antibodies are promptly formed and these placental proteins are broken down and neutralized without doing any damage.

There are, however, many cases in which an immunity to the placental toxins fails to be established, so that an excess of these substances enters the circulation and produces harm. A severe and refractory case of vomiting of pregnancy may cause much trouble to the attending physician and often depletes the vitality of the pregnant woman and of the fetus *in utero* to a serious degree. Fetal death is not an extremely infrequent occurrence and even maternal death has been observed.

It is therefore tempting, to say the least, to investigate a suggestion tending to elaborate a means by which an existing intolerance to placental toxins in a given case of early pregnancy can be diagnosed before severe nausea has made its appearance; certainly before intractable vomiting has set in. The fact that this test is based upon the well-known cutaneous tests for anaphylaxis is an advantage and makes us think that it possesses marked possibilities. There is the further advantage that, theoretically, the test material can also be employed for the purpose of producing an immunity to these placental products, by causing a more rapid and thorough formation of specific proteolytic amboceptors. In this manner—if the idea is correct—intractable vomiting should be prevented and, perhaps, even cured.

In another department of this issue of CLINICAL MEDICINE AND SURGERY, Dr. Henry R. Harrower suggests what appears to be an original diagnostic method which offers a fair promise of being very useful, and we hope that those of our readers who are engaged in obstetric practice will be sufficiently interested in his idea to aid him in working it out. He offers to supply the test material free of charge. Manifestly, the actual clinical trial in a large number of pregnant women affords the only means to determine whether the idea is at all feasible and whether, a diagnosis of anaphylaxis to placental toxins having been established, the unfortunate consequences (nausea and vomiting of pregnancy) can be prevented by the means suggested.

Incidentally, too few physicians are familiar with the solid, scientific, clinical work which is being done in connection with the functions of the endocrines and the possibilities of endocrine therapy. To those who lack information along this line we suggest the study of the little journal, *The Endocrine Survey*, in which the world's literature on this fascinating subject is abstracted, with the needs of the general practitioner kept constantly in mind. It isn't a completely predigested pill of mental pabulum, the swallowing of which will make a man a finished endocrinologist, but the material is in a shape so that it can be assimilated without overtaxing the intellect.

Every physician should be following the modern work in physiology, metabolism and endocrinology, for these things are fundamental. And every physician should also be studying and recording his cases carefully and adding his bit to the science of clinical medicine and surgery.

By wise people an appropriate observation is accepted even from a child. On the invisibility of the sun, is not the light of a lamp availed of?—Sanskrit Proverb.

CANNED EFFORT

When Neanderthal man roamed the surface of Europe, a few thousand years ago, he ate whenever he could run down his dinner on the hoof and bop it on the head with a club, or when he could find a berry bush or a clump of succulent roots. The rest of the time he went hungry, for there were no cold storage warehouses in those days.

Essentially the same condition of affairs continued until well into the nineteenth century. Men ate the things which they could raise on their own farms and gardens and the beasts, nuts and fruits which they could find in the neighboring woods and fields. If the season was bad and the home-grown food was scarce, they took a reef or two in their belts and *ate less*. If one pined for oranges and bananas he *went where these fruits grew or did without*.

Our cave-dwelling ancestors put forth a great burst of effort when game or a desirable woman was in sight; the rest of the time they loafed, for there was no way to store up the results of their activities and so spread them out over long periods of moderate work.

Our parents (or perhaps our grandparents), if they wanted to hear a concert or a lecture, went where the musicians or the lecturer were holding forth, or else they did without this food for their higher faculties.

It is difficult for the present generation to realize that conditions like these existed in the very recent past. For a considerable number of years the excess food harvested during "good" years has been stored in satisfactory form to tide us over the "bad" years. If one part of the country suffered a shortage, another part enjoyed a plethora and sent the excess, in cans, to relieve the needs of those less fortunate. Refrigerator cars have placed exotic fruits and out-of-season vegetables within the reach of those with very moderate incomes.

Forty or fifty years ago the use of "canned power" in the form of electricity, began to come into fairly general use, and now it is a commonplace to find that localities where there is power in abundance, as at Niagara Falls, have made or are making arrangements to "can" this power and "ship" it to places where it is needed.

In the last quarter of the nineteenth century "canned music", in the form of the "gramophone", became available, and this industry, especially since the advent of the radio, has grown to proportions which would have staggered our ancestors half a century ago.

We are not all able to can peaches and pears and string-beans, or waterpower and music, but every one of us has and should be exercising the power to "can" our daily output of effort so as to store it against the meager days when we shall be able to work less or not at all.

Money is canned effort! It is the visible and negotiable result of today's labor, which can be laid aside in an enduring form for our use when the lean years come. Under no circumstances is its acquisition to be considered an end in itself, but he who neglects it altogether is as improvident as his skin-clothed and club-swinging progenitors, and is in the same danger from the vicissitudes of fortune as were they.

We should work for the love and joy of it, but in doing so we should remember that "the night cometh when no man can work" and should consider it no stain upon the high and noble character of our calling if we insist upon laying away upon the shelves a few "cans" of that which will sustain us when our working days are interrupted, temporarily or permanently.

There is no doing of a thing done; there is no death for a dead man; there is no advantage in grief for that which is passed—this is the opinion of those learned in the Vedas.—Sanskrit Proverb.

DEATH AND DOCTORS

Does it make any difference in the time a man dies and what he dies of if he has been in the habit of consulting a physician whenever he is ill? In other words, is the doctor who has a real chance at a patient able to ward off certain types of disease?

The members of the Evanston Branch of the Chicago Medical Society have become interested in this problem and have set out to collect data. Every member of the society is asked to keep a record of all deaths among his patients during a period of six months and record them, by diagnosis and date, under two headings: Those who (a) have, and (b) have not been in the habit of seeking medical advice in all illnesses of any severity.

If there is any great amount of merit in some of the modern ideas with regard to preventive medicine, there ought to be noticeably less deaths from the various metabolic diseases (diabetes, nephritis, etc.) and from the acute infectious diseases for which there is a specific treatment, giving results in proportion to the promptness with which it is used (diphtheria, scarlet fever, etc.). There should be a difference,

too, in such conditions as pneumonia, mastoiditis, appendicitis and other maladies where early and intelligent medical attention can obviate serious complications.

When the figures compiled from this investigation appear they ought to make interesting reading. The Evanston Society has no patent on this idea, so far as we know, and if a number of county and city societies should call for such reports from their members we might be able to learn a good deal.

As a matter of fact, every medical society in the country ought to be a center for promoting sound, rational and scientific study among its members, and for collecting reports on all kinds of cases for the enrichment of medical literature and the instruction of those who take part in the work of the society.

Economic and sociologic studies which would be highly beneficial to the doctors and to others, might be made in the same way. In fact, we have hardly begun to realize what power lies dormant in the County Medical Society. Let us galvanize these bodies into life and watch for big results.

THANK God every morning when you get up that you have something to do that day which must be done, whether you like it or not. Being forced to work, and forced to do your best, will breed in you temperance and self-control, diligence and strength of will, cheerfulness and content, and a hundred virtues which the idle never know.

—Charles Kingsley.

Leading Articles

Importance of Early Diagnosis of Gall-Bladder Disease

Value of Cholecystography*

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DISEASE of the gall-bladder has held an important place in the interest of the clinician for many years and has furnished a fascinating field for investigation and study. For obvious reasons, the critical and terminal symptoms, such as those associated with gall-stones and their infectious complexes—septic cholecystitis, cholangitis, necrosis and perforation—are often the only ones recognized. These serious and often irreparable conditions are now known to be but the terminal manifestations of a chronic infection that has sometimes been present, unsuspected, for many years.

The extent and importance of these gall-tract infections were not appreciated by the earlier clinicians but, in the light of more modern investigations, the far-reaching effects of gall-bladder disease have gradually appeared.

The Bile Tracts and the Liver

As early as 1888, Reidel noticed that the liver was enlarged in gall-bladder disease and Charcot, in 1892, also noted enlargement of the liver in cases of gall-stones. The picture we see today of intermittent fever from blockage of the common duct with stones and subsequent infection, still bears the name of Charcot's intermittent fever. Many authors have stressed the importance, in this connection, of the occurrence of serious hepatic damage as always being associated with gall-bladder infection.

Tietze and Winkler¹ demonstrated the frequency of this condition by taking sections from the liver, distant from the gall-bladder, in fifty cases at operation on the biliary tract and found definite liver damage in every case. Weible has called attention to the fact that visible changes in the liver are present in a high percentage of cases of gall-bladder infection. He observed these changes in sixty percent of his cases op-

erated upon, and in forty-four cases in which sections were taken, at the time of operation, definite pathologic changes were found in every case.

Sudler, in 1901, and Graham and his associates, in 1918, through a series of splendid investigations, demonstrated the relation of hepatitis and cholecystitis and showed that either might be the result of the other, through lymphatic channels. The original source of infection is probably most often located somewhere in the portal system, the region of the cecum being a frightful source, as emphasized by Mayo; or, in other cases, the trouble comes from an adjacent ulcer and is sometimes hematogenous in origin. Gundeman² found in his series of gastric ulcers that sections of the liver removed at the time of operation contained the same organisms as those found in the ulcers, although there was no associated cholecystitis nor cholangitis in this series of cases.

Gall-Stones and Diabetes

The high percentage of occurrence of gall-bladder disease in acute and chronic pancreatitis is now well known. Vogel³ found that in sixty-two percent of all cases of acute pancreatitis there was an associated gall-bladder infection, and many other authors have called attention to the frequent concurrence of these two conditions. The brilliant work of Banting and Yates has focused additional attention upon the pancreas and although, even in our advanced knowledge of diabetes, the cause of this disease is still unknown, many authors have called attention to the frequent concurrence of gall-tract disease and diabetes.

Carr,⁴ Hedinger,⁵ Hochhaus⁶ and O'Day,⁷ at different times, have shown the frequent concurrence of gall-stones and diabetes; while DuFourt,⁸ Eustis,⁹ Lichty,¹⁰ Rabinowitch,¹¹ Rolleston¹² and Wilder¹³ have, in a very interesting way, pointed out incidents of diabetes mellitus and diseases of the

* Read before the Southern Medical Association at Atlanta, Ga., Nov. 15, 1926.

biliary passages. B. F. Jones¹⁴ has reported a most instructive group of diabetics whose clinical course and sugar tolerance have been greatly benefited by surgical attention to diseased gall-bladders. He advocates the careful search for hidden infections, especially in the gall-bladder, in all cases of diabetes.

W. J. Mayo has referred to certain forms of cardiac disease associated with disease of the gall-bladder, more particularly the heart lesions of adolescence which, in the presence of gall-stones, were very strikingly relieved by their removal. Many cases of essential hypertension, especially in women of over-weight, have frequently been relieved by operation on the gall-bladder. Similarly, cases of angina have likewise often been greatly benefited.

Focal Infection, Appendicitis and Cancer

Williams, of the Mayo Clinic, noted coronary sclerosis associated with disease of the gall-bladder in twenty-four percent of cases, at autopsy. Infectious arthritis due to focal infection, especially if disease of the gall-bladder is found, is often cured by removal of this focus. One of our most satisfactory cases fell in this latter group and was greatly benefited by cholecystectomy.

Moynihan and Mayo have mentioned striking examples of simultaneous infection and perforation of the appendix and gall-bladder, and surgeons generally agree today that, if feasible, all appendices with any evidence of pathologic change should be removed at the time of operation on the biliary passages, because of the known frequent source of infection at this point.

Primary cancer of the gall-bladder is not an exceedingly rare disease; while the much more common cancer of the liver is, in a majority of cases, metastatic. Leitch¹⁵ states that ten percent of all adults have gall-stones and that five percent of all persons with gall-stones have cancer of the biliary passages, stones being present in practically every case of gall-bladder cancer. He was able, experimentally, to produce gall-bladder cancer in animals by placing human gall-stones, particles of pitch and pebbles in their gall-bladders and, therefore, concluded that mechanical irritation is the etiologic factor. Carcinoma of the pancreas should likewise be considered in this connection.

The old, classical, textbook picture of the gall-bladder type, "Fat, fair, forty and belching," is no longer the only type of individual in whom we may suspect chronic

biliary infection. There is no gall-bladder type, and no train of symptoms in this condition that are classical. The most frequent symptoms we have observed are chronic dyspepsia with much gas; but symptoms may range from typical colic with stones, to colic when there are no stones, or mild indigestion, or symptoms of advanced hepatic insufficiency. The gall-bladder may be the seat of disease at any age, and the constitutional make-up of the individual is not a necessary accompaniment of the disease.

Snyder,¹⁶ Reid¹⁷ and Montgomery, Wharton,¹⁸ Kellog,¹⁹ von Khautz,²⁰ Farr,²¹ Eisen-drath,²² Griffith and others have called our attention to the occurrence of cholecystitis and cholelithiasis in children, although even the modern textbooks would lead us to believe that this condition is rare. One of us recently operated upon a girl of sixteen with a diagnosis of cholecystitis and found a grossly diseased gall-bladder containing many stones.

Physiology of the Biliary System

The importance of early diagnosis of cholecystic disease is evident from the above brief review of the serious pathology that may follow infection of the biliary passages, for many of these pathologic changes are permanent.

A proper understanding of the pathologic gall-bladder must necessarily be based primarily upon an understanding of its physiology. Wherever the ultimate origin of the bile may be, it is now definitely proved that the liver is not the source of all bile pigments, as was formerly believed; many investigators even contend that this is not formed in the liver at all but that the liver acts simply as an excretory organ for the removal of these products, which are formed in other tissues, just as the kidneys excrete nitrogenous products which they themselves do not produce.

Mann,²³ Rich,²⁴ Whipple,²⁵ *et al*, have proved conclusively that bile pigments are formed without the aid of the liver, being produced outside the liver cells proper, and excreted by them into the capillaries of the biliary system. The production of bile is more or less continuous but it enters the duodenum intermittently, due to the action of the sphincter muscle of Oddi which surrounds the common duct at the papilla of Vater. This discharge into the duodenum is periodic, therefore, and is controlled largely by the entrance of food into the duodenum. During the inter-diges-

tive periods the bile accumulates in the biliary passages, backs up into the relaxing gall-bladder and is held captive there by the spiral valves of Heister. It is here that the gross volume of bile is lessened through the absorption of water by the mucous lining of the gall-bladder, thus making room for the entrance of more bile. Hammerstein states that this concentration may reach ten times that found in the common duct. The relaxation of the common duct sphincter, with the contraction of the gall-bladder and the attendant discharge of bile, follows the introduction of digestive products into the duodenum. The action of this sphincter of Oddi may likewise be controlled by a variety of substances, such as magnesium sulphate, injected into the duodenum, and by varying the alkali and acid content of the stomach as well as that of the duodenum, as shown by Cole.³⁴

Stewart,³⁵ Einhorn and Ryan have shown, by direct visualization of the gall-bladder, that foods such as egg yolk and cream empty the gall-bladder more effectually than any substance known. This fact, as they mention, reflects considerable doubt upon the value of the so-called "nonsurgical drainage" of the gall-bladder, as it seems rather severe to subject a patient to a duodenal tube when the gall-bladder can be completely and quickly emptied by a meal of bacon and eggs.

Distention of the stomach regularly causes spasm of the sphincter and obviously, as Cole points out, this regulation occurs through the sympathetic nervous system, as the action is too rapid to be explained by the production of a hormone. An understanding of this delicate mechanism throws considerable light upon the cause of marked gastric symptoms which often accompany disease of the gall-bladder.

Diagnosis

The older methods of diagnosis of gall-bladder disease were crude and unreliable. Even our modern textbooks on surgery still speak of palpation of the enlarged gall-bladder, of digestive disturbance extending over a period of years, of jaundice and intermittent fever, all of which are late symptoms of a disease which has, perhaps, already produced sclerotic changes in vital tissues. With the advent of the x-ray much hope was held out for a more accurate and early diagnosis, but this alone has been somewhat disappointing. Correct x-ray diagnosis of stones, as reported by the most pessimistic to the most optimistic,

still shows an error of over fifty percent and a negative diagnosis in forty-four percent of cases in which definite pathologic changes have been found at operation.

Carman and McCarty state that fewer than half their cases of gall-bladder disease were revealed by x-ray examination before the days of cholecystography. According to these authors, thirty-eight percent of gall-stones have been shown by x-ray; but even typical shadows may be confused with a dozen or more similar shadows of extra-hepatic origin. A shadow of a diseased gall-bladder without stones is even more elusive.

With these discouraging facts before us, and with the knowledge of the importance of the early diagnosis of gall-bladder infections, any means that will aid in an earlier diagnosis will be most gratefully received.

In the absence of visualized evidence of gall-bladder disease, there are, of course, many cases in which the combined physical and clinical findings justify operation. Even in the hands of the most skilled, however, and with the aid of all means at our command, before the advent of cholecystography, there still remained a much too high percentage of error for the importance of the disease under discussion.

Fouchet³⁶, in 1918, was the first to call attention to hyperbilirubinemia in gall-bladder disease, and he published very encouraging results of his tests.

Friedman and Straus³⁷ and, later, Speik³⁸, Liljedahl and Falk applied the Fouchet test to a series of clinical cases and found that other conditions gave positive reactions, especially duodenal ulcer, and its value, therefore, was greatly lessened, particularly since this is one of the most common conditions to be differentiated.

Garvin's³⁹ careful study of 458 patients in which he tried the Fouchet test, demonstrated still further the unreliability of this test as a method of diagnosing gall-bladder disease. Only seventeen percent of his proved cases responded positively to the test, and various other affections, not associated with gall-bladder disease, gave a positive reaction. The value of the Fouchet test as a diagnostic adjunct is, therefore, disappointing and highly questionable in view of the above findings.

Cholecystography

Recently, the study of the functional capacity of the liver has attracted the efforts of various investigators and, as a result of the pioneer work in this field, cholecystog-



Fig. 1.—Normal gall-bladder, twelve hours after intravenous injection of sodium tetralodophenolphthalein.



Fig. 2.—Same as Fig. 1, eighteen hours after injection. Note the decrease in size and greater concentration of the dye.

raphy has developed. Theoretically any compound containing a metal or a bromine or iodine radical, when excreted by the liver, will render the gall-bladder opaque, if sufficiently concentrated there.

Graham,²¹ Cole and Copher were first to show that it is possible in the living human subject to render the gall-bladder opaque to the x-ray by injection of certain substances into the blood stream. They also called attention to the criteria for determining the normal and pathologic gall-bladder when examined in this way.

These observers tried numerous compounds and found it possible, with a number of substances, to produce shadows of the gall-bladder by injecting these substances into the body.

The ability of a compound to absorb the x-ray seems to be dependent upon its atomic weight. As the atomic weight of chlorine is 35.46, bromine 79.92, iodine 126.92 it is readily seen that a compound containing one or more of these elements should be suitable for cholecystography, as these substances are excreted by the liver—the bromine and iodine probably exclusively by this organ. They would, therefore, appear in the bile, be concentrated in the gall-bladder and render it opaque to the x-ray.

Milliken and Whitaker,²² in their very ex-

cellent experimental work with the more highly purified iodine salt, report satisfactory cholecystograms with much smaller doses of this salt, due to its greater atomic weight. The systemic reactions following the injections of the iodine salt are much less than those following bromine, because of this lessened dose. Later, Graham and Cole confirmed these findings.

In our own experience, following a series of animal experiments, we were in accord with Milliken and Whitaker and believe the iodine salt best suited for this purpose because of the small dose necessary and the freedom from reaction.

Clinicians have been quick to seize this method of visualization of the gall-bladder and have used it extensively in a wide variety of cases. We have been able to find in the literature available to date, reports of the application of this method to over a thousand cases of gall-bladder disease.²³⁻²⁵ The aggregate proportion of correct diagnosis of gall-bladder disease has been thirty-seven percent with the use of the x-ray alone; sixty-five percent by combined clinical methods formerly available, and ninety-five percent following cholecystography in over a thousand proven cases. This procedure has been particularly valuable in those cases



Fig. 3.—Same as Figs. 1 and 2, twenty hours after injection and two hours after meal consisting of fats. Note that gall-bladder is practically empty of the dye.

of early cholecystitis in which clinical and all other methods of examination leave one still in doubt as to the diagnosis.

It is our purpose, in presenting this series of cases, to furnish a comparison of former methods of diagnosis in obscure abdominal conditions with the more recent method of cholecystography, as well as to determine its practicability as a routine measure.

Technic

The technic we have employed has been the use of sodium tetraiodophenolphthalein in doses of 0.04 Gram per kilogram of body weight, dissolved in 30 cc. of physiologic saline solution per Gram of drug used. This solution is rendered slightly alkaline by the addition of 1 cc. of a 10-percent solution of sodium carbonate, filtered, sterilized and injected slowly, intravenously, preceded by a few cc. of saline to be sure the needle is in the vein, as the drug is highly irritating to the tissues. This is then followed by the rapid injection of 30 to 50 cc. of saline to prevent the occurrence of thrombosis.

Preceding the injection, the patient is instructed to abstain from food for at least six hours, and no food is taken until the end of twelve hours, at which time the first series of x-rays is made. The patient is then given a fat meal and a second series

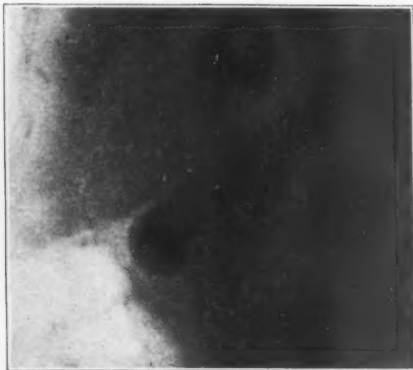


Fig. 4.—Elongated, deformed gall-bladder. Chronic cholecystitis with adhesions. No stones.

of pictures made two hours later, as normally the entrance of food into the duodenum causes relaxation of the common duct sphincter and contraction of the gall-bladder. A test of the function of the gall-bladder is thus obtained and is as important as observation of the size, shape, filling defects, etc.

Whitaker, Milliken and Vogt¹¹ and, later, Oakman¹² and Menees,¹³ reported favorably upon the oral administration of the iodine salt. We prepared some enteric-coated pills to be given at intervals of a few minutes on the evening before the patient was to report for x-ray examination and in this way we have obtained cholecystograms equally as satisfactory as from the intravenous administration. There was nearly always, however, a cathartic effect and occasional vomiting; and, as the question of

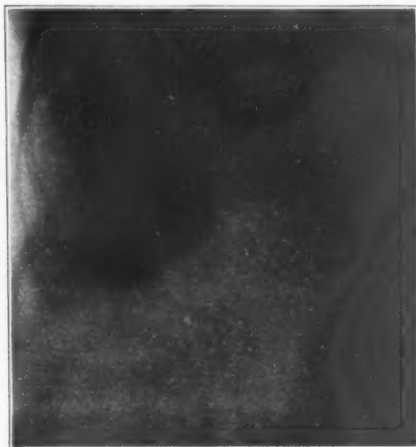


Fig. 5.—A large gall-bladder showing a constriction near its fundus. Twelve hours after injection.



Fig. 6.—Same as Fig. 5, twenty-six hours after injection and two hours after meal consisting of fats. Note it did not empty and the constriction remains. At operation a grossly diseased organ was found with a band of fibrous tissue around the lumen producing an "hour-glass" gall-bladder.

absorbability is also of importance in diagnosing the functional ability of the gall-bladder, we have not used this method as a routine. The oral administration has the promise, however, of becoming of routine value, to be followed by the intravenous injection in suspected cases.

The criteria for diagnosing gall-bladder pathology are based upon an understanding of its physiology, already mentioned. The shape and size of a normal gall-bladder varies according to bodily habitus, as has been pointed out by Mills.¹⁴ The size increases in the predigestive period and decreases during digestion. Thickening of the walls, due to chronic inflammation, destroys the elasticity of the organ as well as interferes with the absorptive function of the mucous lining. Stones not visible by the x-ray alone may be visualized by this method. No shadow at all, when the proper technic has been carried out, usually means obstruction of the cystic duct.

Fluoroscopic examination may likewise furnish valuable information. Contraindications to the use of this method have gradually been reduced, through improvements in technic, to comparatively few conditions.

In this series of cases there were some with marked cardiac, renal and pulmonary diseases, as well as those advanced in years,

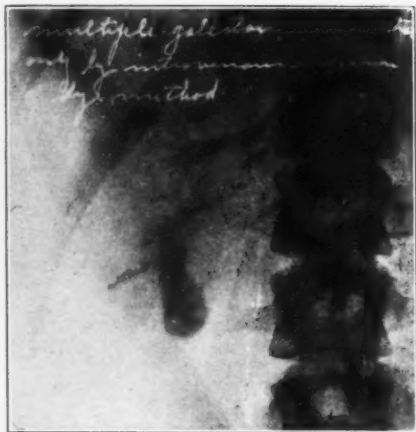


Fig. 7.—Multiple gall-stones with a contracted deformed gall-bladder. These were demonstrated only by the intravenous method.

and at no time have we observed more than slight reactions, such as a feeling of tightness in the chest, nausea and faintness; and these symptoms appeared in patients of more or less apprehensive and nervous dispositions. Four of our series developed thrombosis at the site of injection. This has followed the rapid injection of a concentrated solution and, with the change in our technic, should not occur at all. In marked jaundice, with evident occlusion of the common duct, we have not injected the dye until after jaundice has cleared up, as the evident interference with liver function might cause prolonged retention of the drug and toxic symptoms might follow.

Ottenburg and Abramson¹⁵ were not able to produce liver damage in animals by the injection of the bromine and iodine salts with anything like the doses used in human subjects. They did produce necrosis in some of the animals by the injection of doses far in excess of the amount used in human beings. Carman and Counseller took sections of liver from human subjects, following injection of the dye, and in no case were there any changes found attributable to the use of the drug.

The following table, the case records of which are on file at the Davis-Fischer Hospital, shows the preoperative and postoperative x-ray diagnosis in the last 62 cases we have seen with symptoms suggesting biliary pathology of such severity as to necessitate surgical intervention; our object being to compare the accuracy of the x-ray diagnosis with and without the aid of cholecystography.

Table of Proven Cases

| Case | X-ray Diagnosis | X-ray of Gall-Bladder Region | Operative Findings |
|--------|---|-------------------------------|---|
| No. 1 | Duodenal ulcer..... | Negative | Duodenal ulcer. |
| No. 2 | Chronic appendicitis..... | Negative | Chronic appendicitis. Many adhesions about cecum. |
| No. 3 | Chronic appendicitis..... | Negative | Retrocecal adherent appendicitis. |
| No. 4 | Chronic appendicitis..... | Negative | Appendix abscess. |
| No. 5 | G. I. tract neg..... | Negative | Carcinoma of liver. |
| No. 6 | G. I. tract neg..... | Negative | Gall-stones. |
| No. 7 | Cecum adherent to gall-bladder region..... | Negative | Grossly diseased appendix, dense adhesions. Incomplete rotation of cecum. |
| No. 8 | Chronic appendicitis..... | Negative | Chronic appendicitis, adherent to sigmoid. |
| No. 9 | G. I. tract neg..... | Negative | Thickened, adherent gall-bladder. |
| No. 10 | Duodenal ulcer..... | Negative | Duodenal ulcer. |
| No. 11 | G. I. tract neg..... | Negative | Peritoneal tuberculosis. |
| No. 12 | Chronic appendicitis..... | Negative | Appendix buried in dense adhesions. |
| No. 13 | Gall-stones | Gall-stones | Many gall-stones. |
| No. 14 | Chronic appendicitis..... | Negative | Retrocecal chronic appendicitis. |
| No. 15 | Adhesions of colon..... | Negative | Many adhesions. Cyst of Ovary. |
| No. 16 | Chronic appendicitis..... | Negative | Grossly diseased gall-bladder, many stones. Chronic appendicitis. |
| No. 17 | Chronic appendicitis..... | Negative | Grossly diseased gall-bladder, many stones. Chronic appendicitis. |
| No. 18 | G. I. tract neg..... | Negative | Grossly diseased gall-bladder. |
| No. 19 | Chronic appendicitis..... | Negative | Appendix buried in dense adhesions. |
| No. 20 | Chronic appendicitis..... | Negative | Retrocecal necrotic appendix. |
| No. 21 | Chronic appendicitis..... | Negative | Diseased appendix. |
| No. 22 | Chronic appendicitis..... | Negative | Grossly diseased gall-bladder. Stones. |
| No. 23 | Adhesions of colon..... | Negative | Torsion of omentum, partial obstruction of colon. |
| No. 24 | Chronic appendicitis..... | Negative | Acute appendicitis. |
| No. 25 | Chronic appendicitis..... | Negative | Appendicitis, dense adhesions. |
| No. 26 | Carcinoma of stomach..... | Negative | Carcinoma of stomach. |
| No. 27 | G. I. tract neg..... | Negative | Pedunculated tumor, right ovary. |
| No. 28 | G. I. tract neg..... | Negative | Chronic cholecystitis. |
| No. 29 | Adhesions about colon..... | Negative | Adhesions of colon. |
| No. 30 | Adhesions of colon..... | Negative | Chronic salpingitis. |
| No. 31 | Adhesions about duodenum and gall-bladder | Negative | Chronic appendicitis. |
| No. 32 | Hydrops of gall-bladder | Hydrops of gall-bladder | Carcinoma of pancreas. |

Cholecystograms Made

| Case | X-ray Diagnosis | Cholecystogram | Operative Findings |
|--------|---------------------------|----------------------------|---|
| No. 33 | G. I. tract neg..... | Chronic cholecystitis..... | Dense adhesions to diseased gall-bladder. |
| No. 34 | Chronic appendicitis..... | Chronic cholecystitis..... | Adherent gall-bladder containing sand. |

Table of Proven Cases—(Continued)

| Case | X-Ray Diagnosis | Cholecystogram | Operative Findings |
|--------|---------------------------|--|---|
| No. 35 | G. I. tract neg..... | Chronic cholecystitis..... | Thickened, diseased gall-bladder. |
| No. 36 | G. I. tract neg..... | Occlusion of cystic duct by stone..... | Chronic cholecystitis, stone occluding cystic duct. |
| No. 37 | Adhesions about cecum.. | Chronic cholecystitis..... | Thickened, diseased gall-bladder. Chronic appendicitis. |
| No. 38 | G. I. tract neg..... | Cholecystitis with stones | Chronic cholecystitis. Many stones. |
| No. 39 | G. I. tract neg..... | Cystic duct occluded..... | Cholecystitis, contracted gall-bladder. |
| No. 40 | Chronic appendicitis..... | Chronic cholecystitis..... | Chronic appendicitis. Gall-bladder normal. |
| No. 41 | Duodenal ulcer..... | Normal gall-bladder..... | Duodenal ulcer, adherent; gall-bladder, normal. |
| No. 42 | Adhesions about cecum.. | Gall-bladder normal..... | Chronic appendicitis. Gall-bladder normal. |
| No. 43 | Adhesions about cecum.. | Chronic cholecystitis..... | Thickened, adherent gall-bladder. Chronic appendicitis. |
| No. 44 | G. I. tract neg..... | Occlusion of cystic duct | Thickened, contracted gall-bladder. Small stones in duct. |
| No. 45 | Adhesions about cecum | Normal gall-bladder..... | Chronic appendicitis. Gall-bladder normal. |
| No. 46 | Adhesions of colon..... | Normal gall-bladder..... | Chronic appendicitis. Gall-bladder normal. |
| No. 47 | Chronic appendicitis.... | Chronic cholecystitis..... | Chronic appendicitis. Thickened, adherent gall-bladder. |
| No. 48 | G. I. tract neg..... | Cystic duct occluded..... | Cholecystitis with stones. Duct occluded. |
| No. 49 | Adhesions about cecum | Gall-bladder normal..... | Dense adhesions about cecum, appendicitis. Gall-bladder normal. |
| No. 50 | G. I. tract neg..... | Cystic duct occluded..... | Thickened diseased gall-bladder. Stone in duct. |
| No. 51 | G. I. tract neg..... | Cystic duct occluded..... | Thickened, contracted gall-bladder. |
| No. 52 | G. I. tract neg..... | Gall-bladder normal..... | Chronic salpingitis multiple fibroids. Gall-bladder normal. |
| No. 53 | Adhesions about cecum | Chronic cholecystitis..... | Chronic appendicitis. Chronic cholecystitis. |
| No. 54 | G. I. tract neg..... | Chronic cholecystitis..... | Thickened, adherent gall-bladder. |
| No. 55 | G. I. tract neg..... | Chronic cholecystitis..... | Chronic cholecystitis, many adhesions. |
| No. 56 | G. I. tract neg..... | Chronic cholecystitis..... | Chronic cholecystitis, dense adhesions. |
| No. 57 | G. I. tract neg..... | Cystic duct occluded..... | Thickened gall-bladder with stones. |
| No. 58 | Adhesions about cecum | Chronic cholecystitis..... | Thickened, adherent gall-bladder. Cecal region not explored. |
| No. 59 | Duodenal ulcer..... | Gall-bladder normal..... | Duodenal ulcer, normal gall-bladder. |
| No. 60 | Adhesions about cecum | Cystic duct occluded..... | Gall-bladder thickened, full of sand. Chronic appendicitis. |
| No. 61 | G. I. tract neg..... | Chronic cholecystitis..... | Thickened gall-bladder, many adhesions. |
| No. 62 | G. I. tract neg..... | Chronic cholecystitis, bands of adhesions..... | Thickened, diseased gall-bladder, dense adhesions. |

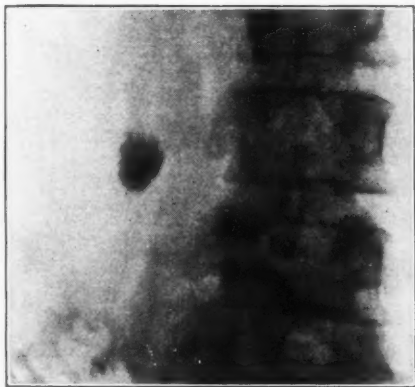


Fig. 8.—Multiple stones which remained coated with the dye after the gall-bladder had emptied. We failed to find these with any other method than the intravenous injection.

The first 32 of these cases were examined by routine x-ray, but without the aid of cholecystography and, as will be noted, there was an error of about 30 percent. The remaining cases were examined by routine x-ray methods, with the addition of the cholecystogram, and there was only a 4-percent error. This series of 62 cases, although small, impresses us with the value of the cholecystogram. It has likewise been of great value in many cases, in proving them nonsurgical.

It is not within the scope of this paper to discuss the operative procedures or the preparation of these, often very sick, patients for operation, but it might not be amiss to state that, in the light of our better understanding of liver function and disease, the mortality of extra-common-duct biliary surgery has been reduced from the older figures of over twenty percent to about two percent.

Haggard¹ has ably summed up some of these debatable points in biliary surgery. Judd,² Mayo and Walters³, Andrewes,⁴ and McNee⁵ have called attention to the value of the Van den Berg⁶ test as an estimation of liver function; and Rountree, Walters and Green have shown that when the liver functional capacity has been reduced to twenty-five percent, or less, any serious operation will probably end fatally.

The preoperative estimation of liver function, forced fluids, glucose and calcium infusions and selected time of operation have all aided greatly in reducing mortality in this class of patients. The mortality of operations for relief of obstruction of the common duct still remains around fifty per-



Fig. 9.—Two small stones in the right kidney pelvis overshadowed by the gall-bladder. The stones appear to be in the gall-bladder, but proved to be in kidney pelvis.

cent in most hands. This fact emphasizes again the importance of earlier diagnosis and relief of biliary diseases before these more serious conditions arise.

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Radium and Radon in Intra-Oral Cancer*

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IN treating cancer of the mouth with radium or radon, two classes of patients should be distinguished: those in whom palliation only should be attempted, and those in whom a strong effort should be made to bring about recovery. Failure to recognize the former class of cases may result in severe irradiation effects, which may defeat the object of the treatment; i.e., the relief of the patient's condition.

In the treatment of intra-oral cancer, radium, in our hands, has been entirely replaced by radon, a radioactive gas extracted from radium.

For the extraction of sufficient radon for use in intra-oral cancer, a solution containing at least from 1½ to 2 Grams of metallic radium must be available.

By means of a special apparatus¹ a definite quantity of radon is pumped off daily from this solution and sealed in small glass tubes. These tubes give off radiations that are identical with those given off by tubes of radium.

There is, however, one great difference between radium and radon. While radium tubes have always practically the same strength, radon tubes lose 16 percent of their power every 24 hours. This loss must, of course, be taken into consideration when these tubes are used.

One great advantage of radon over radium lies in the fact that it is possible to concentrate a very large quantity of radon in a very small tube. For example, 1000 milligrams of radon, which is the equivalent in radiating power of 1000 milligrams of metallic radium, can easily be applied to a lesion

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measuring only a fraction of an inch in diameter. Again, in some cases, tubes of radon can be put directly into a tumor and allowed to remain. Both of these procedures are used in intra-oral cancer, but the application of approximately 1000 millicuries is usually the more important. In fact, in our hands, the application of 1000 or more millicuries has almost replaced the implantation method, except in carefully selected cases.

The use of such a large quantity of radon enables one to shorten the duration of the application to a comparatively few minutes. The intra-oral lesion is thus much more effectively irradiated while the danger of metastasis is minimized.

One thousand millicuries, screened with 2 mm. of silver and 2 mm. of rubber may be applied very carefully and gently to a cancerous lesion for from 3 to 20 minutes. In suitable cases, tubes of radon, each containing from 0.5 to 1 or more millicuries, may then be buried evenly throughout the lesion. Great care must be taken not to give an overdose. When the lesion involves some important anatomical structure, or when it lies near bone, large vessels or nerves, the implantation method should not be used. Poorly defined lesions, or those exceeding 2 or 3 cm. in diameter, should seldom, if ever, be implanted with tubes.

When the tumor is favorably situated, as in cancer of the buccal mucous membrane, it should always be irradiated from the outside as well as from the inside with not less than 1000 millicuries, so as to obtain a "cross fire" effect. In order that repair may take place, a bed of tissue capable of producing granulations must surround the growth.

Whether or not the adjacent lymph nodes of the neck are palpable, they should be thoroughly irradiated. A minimum of 1,000 millicuries should be employed. At a distance of 4 cm., 7,000 millicuries per hour may be given to an area of 16 sq. cm.

Methods Other Than Irradiation of Treating Intra-Oral Lesions

For lesions in the mouth, surgery, the actual cautery, diathermy, caustics, etc., have been used by different operators.

Surgery is very successful in carefully selected cases. The various destructive methods, such as the cautery, diathermy, etc., do not appear to be so successful as surgery or radon in dealing with the primary lesion. One objection to the combined use of two methods, such as the cautery and

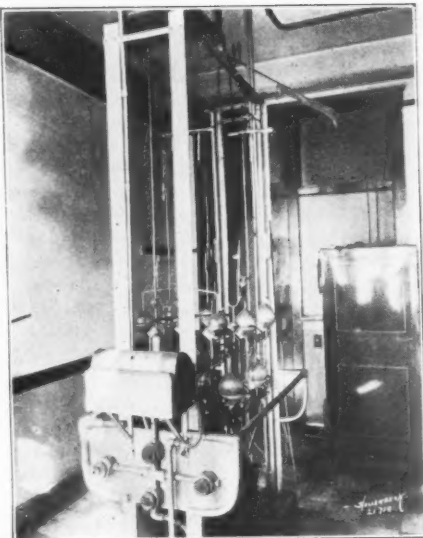


Fig. 1. Authors' apparatus devised by Debiere-Duane & Failla for extracting radon from radium.

irradiation, is that the operator is left in doubt as to which method is the curative one. In Greenough's study of 829 cases of cancer of the cervix, "there were no cures by cautery alone."

Our own opinion is that very early and accessible lesions may be excised or treated with radon. More advanced and inaccessible lesions are amenable only to radon when permanency of the result is taken into consideration.

Methods of Treating the Lymph Nodes of the Neck

There are three general methods of treating the lymph nodes of the neck; viz., surgery, surgery combined with irradiation, and irradiation alone.

Surgery.—Broders' reported from the Mayo Clinic the results of the operative treatment of 516 lip cancers. In 449 cases, the adjacent lymph nodes were operated upon. In 344 (76.6 percent), no metastasis was found. Of 198 patients without metastasis who were traced, 151 (76.26 percent) were found to be living. Of 69 patients with metastasis who were traced, 12 (17.39 percent) were living. No patient in whom more than one group of lymphatics was involved and none in whom the submental or cervical nodes were affected was known to be alive. The only cases with metastasis reporting a good result were ten patients in whom the submaxillary lymph nodes on one side only were involved. The cases in Broders' re-

port appear to have been very carefully selected.

Surgery Combined with Irradiation.—Quick' and his associates at the Memorial Hospital, New York, employ radium or radon for the lesion in the mouth and a combination of surgery and irradiation for the lymph nodes. These authors believe that the cervical nodes perform a conservative and defensive function early in the disease and to remove them by an early routine bloc dissection takes away Nature's chief barrier to dissemination. If no nodes are palpable, therefore, they do not perform a neck dissection, but prefer irradiation of the neck. If nodes are palpable, they perform a limited operation and at the same time, in suitable cases, implant tubes of radon in the operative field. If the disease has broken through the capsule of the glands, they do not attempt to remove the glands.

Quick has reported 148 unselected cases of tongue cancer, which were treated with radium combined with surgery. Forty-three cases (29 percent) had remained free of the disease for periods ranging from four months to four years.

Irradiation.—Schreiner and Kress' have reported 136 cases of lip cancer treated by irradiation (roentgen rays and radium). In 69 cases there were no palpable nodes in the neck, and in 36 cases lymphatic involvement was apparent; 31 cases were inoperable. Of the 69 cases without lymphatic involvement, there were 58, and of the 36 with lymphatic involvement there were 13, which were clinically well for periods of from 3 to more than 5 years. These authors believe that at least 34 percent of cases in which the lymphatics are involved, but which are in an operable state, can be healed by irradiation (roentgen rays) alone.

Operability

One may ask, when are cancerous lymph nodes of the neck operable and when are they inoperable?

Operable Lymph Nodes.—A consideration of Broders' cases, which were just referred to, leads to the view that there is little if any likelihood of cure by operation unless the disease is limited to one submaxillary gland. Would it not be well, therefore, to regard cases in which there is involvement of lymph nodes other than the submaxillary, as really inoperable, and submit them to irradiation rather than to operation?

Our own experience leads us to believe that irradiation of the glands of the neck with a large quantity of radon is quite as

successful as surgery. Each case, however, furnishes a problem in itself and it may be difficult to decide whether operation or irradiation is preferable.

Inoperable Lymph Nodes.—When nodes are large and fixed or when more than one group of nodes is involved, we believe operation is inadvisable.

In such cases, irradiation may be successful in a few cases. The degree of malignancy of the carcinoma and its response to irradiation have a good deal of bearing on the result. Palliation can often be accomplished by irradiation, however, and life may be prolonged. In all cases, irradiation of lymph nodes should be carried out with a minimum of 1000 millicuries of radon, applied at a distance of several centimeters from the skin surface. In our opinion, implantation of lymph nodes with tubes of radium or radon is seldom advisable.

Cancer "Cures"

Many attempts have been made to influence cancer by injecting various substances into the body.

G. Fichera^o of Turin, Italy, has used a serum manufactured from tissues of human embryos which were expelled between the second and sixth month of gestation. Injected into cancer patients, this serum produced in some cases extraordinary results. Large, inoperable growths were reduced in size and pain was relieved. Unfortunately, no cases appear to have been permanently relieved.

W. Blair Bell' of Liverpool, England, has employed preparations containing lead for injection into cancer patients. Of 227 patients treated it is claimed that 50 have lived for from 1 to 5 years in a completely arrested stage. A few cases have died, apparently as the result of the treatment.

Bell recommends that only selected cases that are beyond help from surgery or irradiation be treated with lead. He has also expressed the opinion that much experimental work remains to be done in order to diminish the danger of the treatment, and that the time is not yet ripe for the general employment of lead.

Radium preparations have been injected into the blood stream in various types of malignancy.

In our opinion, however, attempts to influence cancer by injections of radio-active substances are doomed to failure. Long before the tumor itself can be made to resolve, normal structures, such as the spleen, may be seriously injured.



Fig. 2. Carcinoma of the tongue. Photo taken July, 1921.



Fig. 3. Patient in Fig. 2 after treatment. Photo taken 4½ years later.

Notwithstanding these and many other interesting attempts to influence cancer by injections, surgery and irradiation with large quantities of radon still remain, in our opinion, the best and most practical means of treating cancer.

Report Of Cases

During the five years prior to January, 1925, we treated with radon 141 unselected cases of intra-oral cancer. Cases in which the lips or bone were involved are not included. In 115 cases, the clinical diagnosis was confirmed microscopically.

As we have made a detailed report of these cases elsewhere¹, we shall limit our present report to a consideration of a few of the main items of interest in 56 unselected cases, which were treated during a period of 3 years prior to December 31, 1922. In all of these cases, the clinical diagnosis was confirmed microscopically.

For convenience, we have grouped together all cases of intra-oral cancer, although a better plan would be to group them, as we have done elsewhere¹, according to the anatomical site of the lesion.

The average age of the patients in this group was 58.7 years. There were 52 males,

and 4 females. Of the 56 cases, 39 have been carefully traced; 21 of these had enlarged lymph nodes of the neck that we regarded as cancerous at the time of treatment; in 18 cases no nodes were found.

Patients without nodes.—Of the 18 patients without nodes, 14 (77.8 percent) are living. Four patients have been well for over 5 years, 5 over 4 years and 5 over 3 years.

Patients with nodes.—Of the 21 patients with nodes, 2 are living, one having been well for over 5 years, and the other for over 4 years.

Duration of Life After Treatment.—The duration of life after treatment of the 19 patients who have died varied from 4 months to 3 years, the average duration being 16.4 months.

In the group of 39 cases that were traced, there were 9 patients with cancer of the tongue.

Of these, 4 are living. These 4 patients have been well for 5, 4, 3½ and 3 years respectively.

Of the 5 cases who have died, 2 were free of cancer at the time of their death, one having been well for over 4½ years and the other for over 1½ years.

General Results

Assuming that the 17 untraced patients are dead, the total mortality for the series of 56 unselected cases is 64:3 percent. Twenty patients (35.7 percent) have been well for periods of from 3 to 5 years.

Conclusions

In the treatment of intra-oral cancer, at least 1000 millicuries of radon should be available. A small quantity of radium or radon seldom cures the intra-oral lesion and is of little or no value in treating the lymph nodes.

One should use caution and judgment in the application of radon and in the implantation of radon tubes so that patients may be helped and not injured.

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The Surgical Anatomy, Differential Diagnosis and Treatment of Inguinal Hernia

By EMERY M. FROMMR M.D., St. Joseph, Mo.

(Concluded from March issue, p. 184)

Operation

Only such methods should be employed, as have stood the test of time and are the simplest as regards technic and safest as regards radical cure. Bassini's method has unquestionable superiority over the earlier methods as well as over most of those since advised and is today the operation of choice in practically all the clinics of the world. It was the first operation in which the attempt to cure a hernia was based upon a true appreciation of the etiology. This operation gives excellent results, because it embodies the two essentials of a radical cure; namely, the entire removal of the hernial sac and the construction of a firm wall at that area of the abdominal wall which is weakened by the passage of the hernia, this being done by uniting the internal oblique muscle with Poupart's ligament and placing the spermatic cord in front of this newly built wall. When this procedure is carefully and properly performed, the prospect of a radical cure is excellent and recurrences are very rare.

The night previous to the operation castor oil is given the patient, followed by a cleansing enema early in the morning. The urinary bladder should be empty. Nervous, restless patients receive 1/6 to 1/4 grain of

morphine, hypodermically, one-half hour before the operation.

The preparation of the patient consists of shaving the lower abdomen and pubes, this being best done the previous evening. A small cushion is placed beneath the hip, thus elevating the inguinal region. The skin is rubbed with ether and painted with tincture of iodine. After the operation the iodine must be washed off with alcohol immediately, for the skin of the pubic region is very sensitive. In males, the entire penis should be wrapped in a sterile gauze bandage, previously wrung out of 1:1000 bichloride of mercury solution. No ill effect has ever been seen from this precaution, which excludes the almost indisinfectable penis from the field of operation.

The inguinal region is now isolated carefully with sterile sheets and towels. As a rule, the operation can be started ten minutes after the spinal or local anesthesia, but if there is still some sensation when pricking the skin with a needle, it is advisable to postpone the start for a few minutes.

Bassini's Operation

The different steps of Bassini's operation are the following:

- 1.—A straight, oblique skin incision is made, beginning two inches laterally and

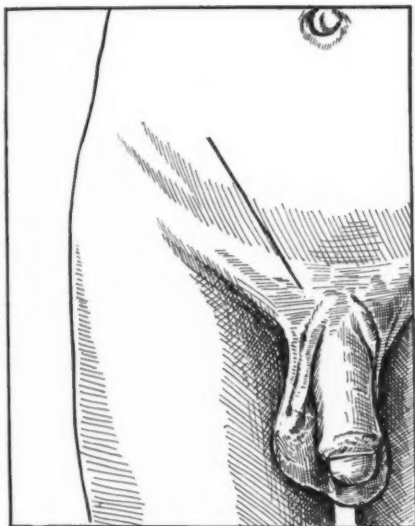


Fig. 3

somewhat below to the anterior superior iliac spine and ending over the external inguinal ring (Fig. 3). This incision is not parallel with Poupart's ligament, but is more vertical. Dissecting the subcutaneous tissue, two veins are met, running almost at right angles to the incision; the external pudendal vein and superficial epigastric vein. Both must be doubly clamped and cut. All, even the smallest, bleeding vessels must be ligated and no further steps are made until absolute hemostasis is secured and the field is dry.

2.—The wound-edges are now retracted by retractors and the aponeurosis of the external oblique muscle exposed, with the external inguinal ring in the lower corner of the wound. The superficial abdominal fascia—a very thin membrane covering the aponeurosis—is gently incised and wiped away with a dry sponge. The aponeurosis is now denuded and can be incised, parallel with its fibers, a small incision being made with the knife. The edges of this small incision are clamped with a hemostat on each side and lifted up (Fig. 4).

A pair of blunt-pointed, straight scissors is introduced through this small split beneath the aponeurosis and pushed gently upward and then downward, thus separating the aponeurosis from the underlying internal oblique muscle. This separation or rather lifting of the aponeurosis is an important step to avoid any injury of the underlying muscle and ilioinguinal nerve.

Finally, the aponeurosis is split upward with the straight scissors for about one inch, and downward to the external ring. Two aponeurosis flaps are obtained by this dissection, and both flaps should be sufficiently retracted from the underlying structures. This separation is best done with a pair of blunt-pointed curved scissors, holding it closed and wiping the flaps away on both sides until the edge of the rectus muscle and the shelving portion of Poupart's ligament are well exposed. This exposure is a very important procedure and particular attention must be paid to carry this exposure of Poupart's ligament to its attachment to the spine of the pubis.

3.—After retraction of the two aponeurosis flaps, the internal oblique muscle and a longitudinal, soft structure are exposed, this latter being the spermatic cord with the hernial sac, covered by a common fascia and situated near the lower margin of the internal muscle. Close to this margin runs the ilioinguinal nerve. While the assistant's hands are occupied with the retraction, the surgeon hooks the spermatic cord with the left index-finger, from below upward, gradually lifting it up, while the right hand gently separates the cord from the adjacent muscle, until the cord is sufficiently lifted from its bed, avoiding any injury of the ilioinguinal nerve. This is another important step of the operation, because a good isolation of the cord facilitates all further steps.

4.—The cord, resting continuously on the surgeon's left index-finger, is now incised in its whole exposed length and the covering fascia gently wiped away with a dry sponge

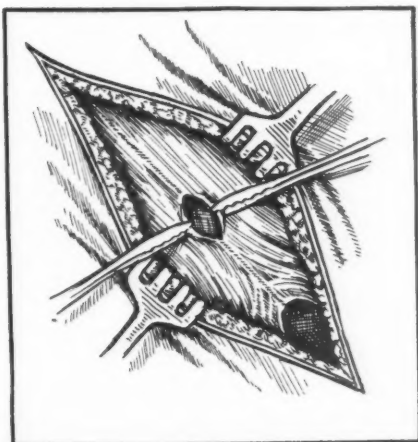


Fig. 4

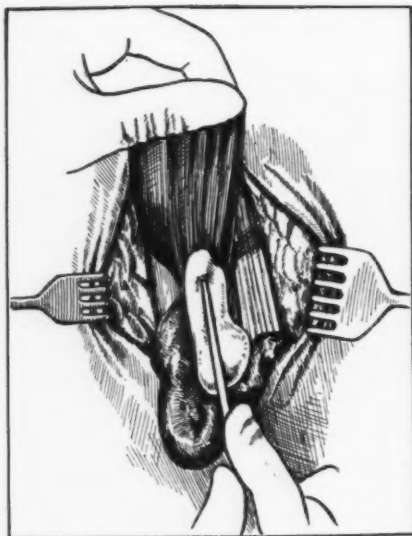


Fig. 5

in the right hand, aiding with the left thumb, until the spermatic cord is well separated from the white tissue of the hernial sac. During all these steps each small bleeding vessel must be instantly ligated and continuous search made for possible bleeding points by frequent sponging of the field. Exact hemostasis is a dominating rule in this operation, because the work is done in very loose tissues, where hemorrhage even from the smallest vessel is very likely to be followed by an extensive hematoma. Caution is necessary to avoid severing any artery.

During all steps injury to the vas deferens must be avoided. When severed, atrophy of the corresponding testicle follows. The vas deferens can easily be recognized by its harder consistency and white color. In children, however, this vas deferens is a very thin structure, resembling a silk thread.

5.—The hernial sac is easily recognized by its white color, especially in old cases, where it is considerably thickened. In a hernia of recent standing the sac is often very thin and translucent. It is very important to handle the sac gently, to avoid all tears, which may result in a sudden prolapse of its contents, thus obscuring the entire field. As a rule, the sac should never be opened until entirely exposed.

As soon as the white tissue of the sac is recognized, it should be picked up with the left thumb and index-finger and all tissues wiped away, partly by dissection, partly

by peeling with a dry sponge, always working close to the sac. This exposure should first be carried out downward to the end of the sac and, when completed, the separated spermatic cord is held out of the field of operation by means of a narrow gauze strip and placed on a dry tape to avoid its contamination. This latter step is often neglected by some surgeons. While the surgeon's left thumb and index finger are occupied with holding the sac, the right hand separates the sac with a dry sponge, upward to the internal inguinal ring (Fig. 5.), care again being exercised to perfect hemostasis.

6.—After the entire hernial sac is well separated, the spermatic cord isolated and all bleeding vessels ligated, search should be made for adhesions between sac and its contents to avoid injury of latter, when splitting the sac. When the sac proves to be free from adhesions, its blind end is clamped with two hemostats and slit between them by means of a pair of blunt-pointed, straight scissors, this slit extending almost to the internal inguinal ring.

When adhesions are present between sac and its contents, or there is any suspicion of a sliding hernia, the sac should be carefully slit on a point free from adhesions and the slit extended under guidance of the eyes. In cases of sliding hernia, the sac must be opened on its anterior surface, close to the inguinal ring and when the contents is identified as large intestine, the best method is the closure of the slit by sutures and reduction of the whole sac into the abdomen, without further exploration; for, in cases of sliding hernia, the sac cannot be removed.

In cases of congenital inguinal hernia, the vaginal process of the peritoneum is open in its whole length, the sac contains the testicle and the structures of the cord run within the wall of the sac; therefore, a separation of the hernial sac from the spermatic cord is technically impossible. In such cases the sac must be slit close to the internal inguinal ring, on its anterior surface, the free portion turned inward like a cuff and simply sutured, leaving that part of the sac where the vas deferens and vessels run intact.

It is often necessary to separate the adherent hernial contents from the sac. This step may be difficult at times and should be done carefully, always ligating the separated portions. If adherent intestinal wall is accidentally injured, the point of injury must be instantly closed by buried

interrupted catgut sutures, so that later possible stricture can be avoided. Therefore, the knowledge of intestinal surgery is all-important in operations for hernia.

If the hernial contents is mostly omentum, forming a large mass in the sac and difficult to reduce, this part of the omentum can be resected by using two or more catgut ligatures, thus avoiding the so-called *en masse* ligature, which is apt to slip off, causing postoperative intra-abdominal hemorrhages.

Different organs may be found in the hernial sac and, except the spleen and pancreas, practically all abdominal organs may compose the hernial contents, especially in hernias of enormous size. If the appendix is encountered in the sac, it should be removed.

After the sac is empty and its contents reduced into the abdominal cavity, it is transfixed close to the internal inguinal

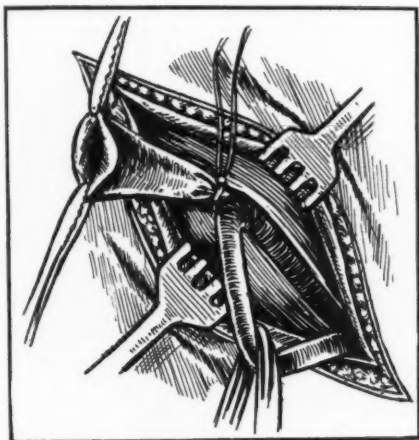


Fig. 6

ring, with a braided silk ligature, No. 2 and tied, first on one side, then on the other side (Fig. 6.). Before cutting short the threads, the redundant portion of the sac must be cut away and the stump wiped off with a dry sponge, to be sure that there is no oozing of blood from the stump. Now, the threads of the ligature are cut short and the stump slips back spontaneously.

7.—The wound is now retracted so that the upper retractor fully exposes the internal oblique muscle and the lower one the shelving edge of Poupart's ligament. A medium-sized, curved needle, armed with braided silk, No. 3 and grasped by a needle holder, enters the lower portion of the internal oblique muscle, nearly as far as the

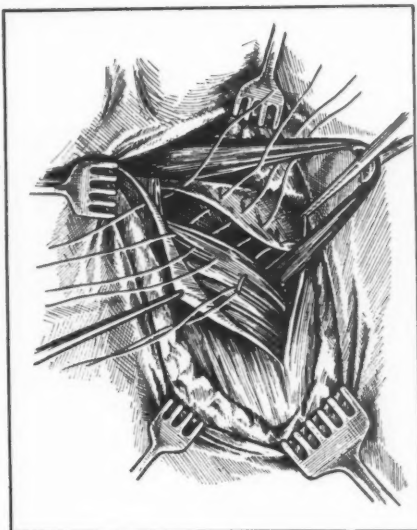


Fig. 7

outer edge of the rectus muscle, picking up a fairly thick portion of the muscle, and then passes outward, picking up the shelving edge of Poupart's ligament. Four or five similar sutures complete this procedure as far as the spine of the pubis (Fig. 7.). The first suture is placed close to the emerging cord, care being taken to avoid constriction of the cord by this suture. The sutures are placed half an inch apart and the last or lowermost suture—being the most important—should pass through the conjoined tendon, close to the pubic bone. All these sutures are interrupted.

The uppermost suture should be tied immediately, to be sure that there is no constriction of the cord while the lower ones are tied after all sutures have been carried through, otherwise the upper sutures, when tied earlier, obscure the shelving edge of Poupart's ligament. The needle must not be passed too deeply through Poupart's ligament, because this may result in injury of the underlying femoral vessels. The sutures are tied snugly, but not so tightly as to strangle the muscle, which when strangulated degenerates and becomes converted into cicatricial tissue.

When tying the sutures, the assistant should approximate the muscle to Poupart's ligament, thus facilitating the knotting, which must be always a surgical or double knot. It is important that no preperitoneal fat should slip between these sutures, this considerably hindering a firm union. Silk sutures having no tendency to become un-

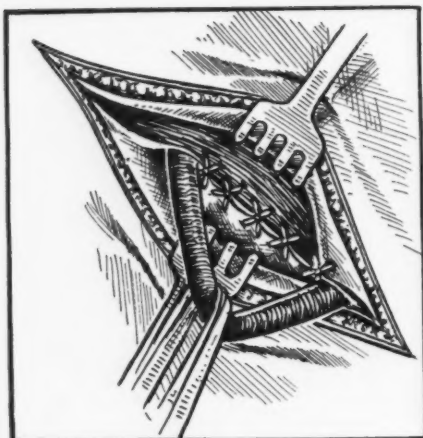


Fig. 8

knotted, the ends may be cut close to the knot.

8.—The spermatic cord is now replaced, lying directly upon the newly-formed, firm posterior wall of the inguinal canal (Fig. 8.), and after being sure that there is not the slightest hemorrhage, the aponeurosis is closed by interrupted braided silk sutures, No. 2, placing these not too close to each other, thus avoiding any possible necrosis of this structure (Fig. 9.). The lowermost suture is placed half an inch from the pubic bone, leaving sufficient room at the external inguinal ring to permit the cord a passage without constriction.

Direct Hernia

The operation for direct inguinal hernia should be performed exactly in the same manner as for the oblique type. The sac in direct hernias is often small and has such a broad base that its removal becomes unnecessary. Care should be taken to avoid injury of the urinary bladder, which is often adherent to the outer surface of the hernial sac. For this reason, the sac should be carefully isolated from all surrounding tissues.

The skin is closed by metal clips from above downward, and before the lowermost clip is applied the last traces of blood are pressed out from the wound, thus securing entire dryness of the tissues. The metal clips are applied half an inch apart and give excellent union of the skin. A narrow strip of sterile gauze is now placed on the wound-line and this strip covered with a wider and longer strip of gauze previously immersed in flexible collodion. When this latter becomes dry, a gauze pad completes the dressing.

After Treatment

The patient is put to bed in the semi-Fowler position, thus relaxing the abdominal muscles and preventing tension on the sutures. A small sand bag is placed upon the wound for twelve hours and the scrotum elevated by placing it on a small cushion.

The after treatment in ordinary cases is simple. Pains may be relieved by small doses of morphine, hypodermically. Liquid nourishment is given for the first two days. After 24 hours a low enema is given, with soap suds, for the relief of any gaseous distension. Bowel movements are secured by the usual laxatives, given if necessary.

After three days the skin clips are removed in the usual manner, the woundline sprinkled with some antiseptic powder and then directly covered with a narrow gauze strip immersed in flexible collodion. This

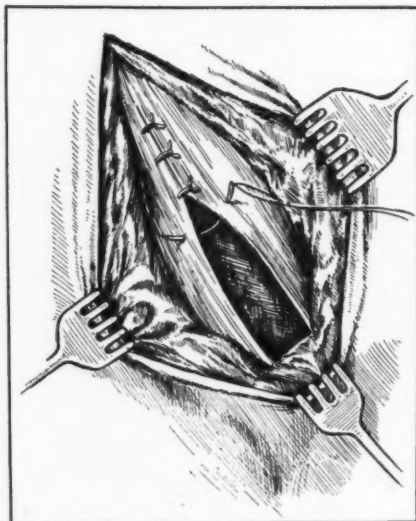


Fig. 9

strip remains on the wound until the twelfth day, at which time the patient may leave the bed.

Among postoperative complications, the most frequently observed is the retention of urine. Catheterization should be postponed as long as possible. Intravenous administration of urotropin, hypodermic injections of pituitary extract or sufficient doses of potassium acetate, given by mouth, may relieve this complication before the catheter is used.

Incomplete hemostasis is responsible for the appearance of a hematocoele and for most of the wound infections, blood coagu-

lum being an excellent culture medium for bacteria. In the former case elevation of the testicle involved and an ice bag applied to the hematocele will result in absorption, which is, however, very slow. When a rising temperature and inflamed wound-area point to infection, several clips must immediately be removed and the wound thoroughly drained.

Strangulated Hernia

The *diagnosis* and surgical management of strangulated inguinal hernia needs detailed discussion, because, when improperly treated, it is attended with a high mortality. There are few conditions in which delay is attended with greater risk. Diffenbach's famous slogan, "In the daytime the sun should not be allowed to set, in the night the sun should not be allowed to rise, before the strangulation has been relieved," expresses the eminent importance of promptness in handling a strangulated hernia.

The *symptoms* of strangulated inguinal hernia are those of intestinal obstruction. There is a more or less marked shock, with rapid pulse and breathing; the temperature is often normal or only slightly elevated; the pain at the site of hernia is quite severe; vomiting or nausea is, in most of the cases, present, and if the lumen of the involved loop is obstructed, there is a complete absence of flatus and stool. The elastic protrusion in the inguinal region and the history of a reducible or irreducible hernia settle the diagnosis. However, it must be emphasized that there are a good many cases of strangulated hernia without palpable tumor in the groin, the hernial sac being very small, or cases, where only a portion of the intestinal wall becomes constricted, allowing the passage of flatus and stool. This latter condition may mislead in making the diagnosis.

When all symptoms of an acute abdominal disease are present, but the accurate diagnosis of a strangulated hernia cannot be made on account of absence of a hernial protrusion, immediate operation should be done, entering the abdomen in the median line, below the umbilicus, and handling the case according to the findings. If a strangulated hernia is encountered, the radical operation; i.e. Bassini's operation, can be postponed or performed as the next step, if the patient's condition is not alarming.

The *treatment* should consist of instant operation. No forcible manipulation to reduce the hernia should ever be attempted. The taxis of a strangulated hernia may

result in fatal injuries to the constricted loop, even in skillful and experienced hands. When the diagnosis is made, morphine and atropine should be given hypodermically for relief of the shock and pain, and if there is retention of urine, the patient must be catheterized. The operator must be thoroughly familiar with intestinal surgery, for a gangrenous loop may require extensive resection with following anastomosis, or an artificial anus must be established. Personally, I am in favor of the primary resection of the gangrenous loop.

Operation for Strangulated Hernia

The steps of the operation for strangulated inguinal hernia are the same as for nonstrangulated cases, with some important exceptions.

After the usual skin incision, the splitting of the aponeurosis should be done with greatest care, because all structures are more or less agglutinated and edematous. In the majority of cases the strangulated ring is the external inguinal ring and by splitting the aponeurosis the strangulation is relieved. The hernial sac should be immediately fixed, to prevent a sliding back of the hernial contents, and no operation should be completed without opening the hernial sac and inspecting its contents for any injury.

When the constricting ring is the internal inguinal ring this latter must be widened. This is done by splitting the ring with a pair of blunt-pointed, curved scissors or with a knife, sliding on a grooved director, this latter being placed between hernial sac and internal ring. In cases of strangulated external hernias the split must be made outward and upward, never inward, for this way one may cut the inferior epigastric vessels, causing profuse hemorrhage. Only in cases of strangulated internal hernia is the split placed inward and upward, medially to the vessels; but strangulated internal hernia is a very rare occurrence and can be diagnosed readily before splitting the ring.

When opening the hernial sac, its contents needs a very careful and close inspection in regard to the viability of the constricted bowel or omentum and the appearance and odor of the serohemorrhagic transudate always present in the sac. The surgeon's good judgment is tried here to the utmost. If the bowel has lost its glossy appearance and the surface has become dull and granular, its color black or grayish, and its wall soft and flabby, the probabilities are that the loop is no longer viable.

There are, however, cases in which the decision between viability and gangrene is extremely difficult. In such cases, towels wrung out of hot saline solution should be applied to the loop for ten minutes and if there is still doubt about the viability, resection should be made well beyond the line of constriction, followed by anastomosis. Only if there is satisfactory evidence, that the bowel has recovered its circulation, indicated by slow peristaltic motion and lighter color, should the loop be reduced into the abdominal cavity.

After completing all sutures, it is advisable to place a small rubber tube in the lower corner of the wound, draining the newly constructed inguinal canal. This tube can be removed after two or three days, when the postoperative course does not indicate any wound-infection. The postoperative treatment should include parenteral fluid administration in form of intravenous glucose infusions or saline hypodermoclyses, with cardiac stimulants, to combat the toxemia which is always present to a greater or less degree.

Notes From the Congress on Medical Education and Hospitals

Reported by GEORGE B. LAKE, M.D., Chicago

EVERY year the medical educators of North America meet to discuss the problems which are arising as the volume of medical knowledge grows and social conditions change. These meetings are held under the auspices of the Council on Medical Education and Hospitals of the American Medical Association, and are very interesting. It is notable that few of those in attendance are under forty-five years old and that there is a high percentage of men over sixty.

The meeting for 1927 was held at the Palmer House, Chicago, February 14, 15 and 16, and was well attended. I have tried to pick out the high spots of the papers and discussions.

Need of Teaching Medical Ethics

By Dr. Arthur Dean Bevan, Chairman of the Council

Dr. Bevan occupied about half of his time in showing that the Volstead act permits a physician more liquor prescriptions than he could ever conceivably need—with his prescriptions and personal office quota, about 500 pints of whisky or its equivalent each year—and that therefore the law is all right.

(As to the adequacy of the liquor allowance we fully agree with him, but we still feel that the law is wrong in principle, in that it dictates to the physician how he shall conduct his practice. We also agree with him that the number of "bootleg" prescriptions written by some doctors is no credit to the profession.—L.)

The question of medical ethics is vital and it is not sufficient to hand each graduate a copy of "Principles of Medical Ethics" when he leaves school and publish an article on the subject now and then. Professional ethics must become a religion and control the lives and acts of all physicians. It should be taught by compulsory lectures in the medical schools and by the precept and example of all medical teachers, as well as by the national and state societies and the Colleges of Physicians and of Surgeons.

The elevation of medical ethics requires courage, imagination, cooperation and hard work.

Discussion

By Dr. Jabez N. Jackson, President-Elect of the A.M.A.

Character is the most important thing for any man—the instinctive sense of what is right and what is wrong. We must make Christians of doctors, in their practice.

The physician's whole work and success depend upon the faith which his patients have in his ability and in his motives. This must not be endangered. He must measure up. We are not concerned with a code of ethics, about which there may be honest differences of opinion, but with standards of conduct. Lectures on ethics should be given in the freshman year, and probably every year, by men of notably high and sound character, and should be compulsory for all medical students.

A generation ago, the doctor had to know human nature—and he did! Today the younger men are absorbed in scientific

studies. The teaching which emphasizes the development of the mind and neglects the development of character is faulty teaching.

Sometimes people ask why doctors should not advertise, since all other classes of people do so. There are three sound reasons for this ethical restriction:

1.—It is in poor taste. The merchant advertises the quality and value of the impersonal goods he has to sell; while the advertising doctor proclaims the superiority of his own personal intelligence and ability. (Note: This seems sound and reasonable. The other higher types of professional men, such as lawyers, architects, clergymen and the like, also refrain from toutting their own accomplishments.—L.)

2.—If advertising is right for one it is right for all. There are 5,000 physicians in Chicago. If each of these proclaimed his superiority over the others it would turn a dignified profession into a joke.

3.—Statements in advertising are either true or false. If a physician advertises that he has some special treatment for tuberculosis or cancer or what-not, he is either lying or, if he is telling the truth, he is committing an ethical and professional crime in withholding his life-saving knowledge from all sufferers who might be benefited if he published his discovery.

(Note: These two latter reasons apply, of course, to the more blatant forms of competitive advertising which are to be sincerely condemned. Do they apply to simple cards announcing specialties, office hours, location and things like that, which are frowned upon by the powers that be? It seems to me that this point is open to discussion and we would be glad to hear from our readers.—L.)

By Prof. A. J. Carlson (Physiology), University of Chicago:

Ethics cannot be taught by lectures. It is either inculcated in early life, by example, or—it is not. If men have not learned basic

ethical principles *before* they come to medical college they will not learn them afterward.

But even if all our graduates were *angels* they could not go out and practice their ideals, under modern competitive conditions, and make a living.

The Function of the University in Medicine

By Dr. Franklin C. McLean, Professor of Medicine, University of Chicago

The university is concerned with research and the propagation of knowledge: The medical school with the training of practical physicians who can apply that knowledge. There is a conflict of ideals. The university says, "In science alone lies the future of medicine."

The subject-matter of medicine is now so enormous that it is utterly impossible for a student to grasp even its outlines in four or five years. We must acquire a new outlook and make our curriculums more flexible. We must do away with the quiz compend and the recitation course. Facts are necessary, but their importance is secondary and the body of knowledge is constantly changing. Rules of action are, of course, necessary in emergencies, but the student should learn *how the rules are formulated*.

The medical student should learn the *intellectual technic* of science by early and continuous participation in research, based, preferably, upon clinical problems, but sound in its methods. He must learn the sources and limits of error and develop the proper mental attitude and a degree of thought power. The courses he takes should be largely of his own selection, and he should be examined only to determine his *fitness to practice medicine*, just before receiving his degree.

One of the great weaknesses of present medical training is the slipshod methods permitted in many dispensaries. Routine and superficiality are all-too-easy to learn under the best of circumstances.



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Notables attending the Conference: Left to right: Dr. Louis S. Wilson, director of the Mayo Foundation; Dr. S. W. Welch, State Health Officer of Alabama; Dr. Ray Lyman Wilbur, president Leland Stanford University, California; Surgeon General M. W. Ireland, U. S. Army; Surgeon General Hugh S. Cumming, U. S. Public Health Service.

The faculty of a medical school must have ability, vision and energy.

The Trend of Medical Education

By Dr. Charles F. Martin, Dean of the Faculty of Medicine, McGill University, Toronto, Canada.

Bilroth covered the essentials of medical education fifty years ago and little of importance has been added since that time.

Medical education is largely controlled by the state boards of registration; and the aim of the schools is educational rather than medical.

Our students come to us ill-prepared. The primary and high schools, and even most of the colleges, pay more attention to the time spent by the student than to the quality of the work done. They do not give scholarly zeal nor individual training. The years spent in them are years of mediocrity. Few students know the classics, foreign languages or even English, and these are the studies which develop personality.

Having entered the medical college, the crowded curriculums foster mediocrity and "machine-made" men, and tire the students so that they cannot do individual outside study. They must have free time for this work. It is what they learn for themselves that counts most.

In Europe they stress the importance of powerful teachers. Here we consider physical equipment and facilities in selecting a medical school.

Too much standardization and classification of schools has serious drawbacks and is unsound. A school is either fit to train physicians, or it is unfit. If unfit it should be eliminated.

There are now no recognized requirements for practicing any specialty, nor any uniformity in the requirements of various state boards. The national examining boards are significant and should be encouraged. The government, the university and the medical profession must cooperate if we are to progress.

Changing the Curriculum

By Dr. Ray Lyman Wilbur, President of Leland Stanford University, California

The present medical curriculum is a compromise. It is too stiff and it is antique, when it should be fluid and progressive. It tries to cover too much and it clings to the old, academic classification of knowledge. The end result is a group of unripe specialists.

The unit of medical study is a human being, controlling a physical body, and this unit cannot profitably be split up. Our students now spend too much time in studying the discharges and extracts of patients and not enough in dealing with the patients themselves. They need to do more physical examining and less laboratory work.

The courses are too crowded and the students are too often annoyed with examinations, most of which accomplish nothing worth while, and with lecture courses, many of which are without value. The "basic sciences"—anatomy, physiology, chemistry, bacteriology and the like—belong among the general courses of the University and not in the medical school, whose function is to train doctors to handle patients.

Four calendar years for a medical course is not a period fixed by divine dispensation. Medical students do not need to loaf all summer. One month of vacation is ample. If they put in full time the same ground could be covered in three years.

Modern hurry is disastrous. Education is not a process of instruction by a teacher, but of learning by the student, who should enter the clinic as well as the laboratory in the spirit of individual research. He should learn how to use the laboratory and the library. As it is, our enthusiastic specialists turn too strong a light upon too small an object.

The knowledge needed to make a satisfactory doctor is not excessively complicated. He needs, chiefly, a thorough familiarity with the technic and interpretation of physical diagnosis, a reasonable equipment of common sense and a knowledge of how to deal with people. He must learn to work with his hands and his senses and to depend upon himself.

Medical teachers should cease to spend most of their time in discussing rare cases. Fixed hours and obligatory subjects, forced upon us by state boards and other agencies, should be eliminated from our curriculums and each school should be allowed to decide upon the best way to accomplish its purposes. The "dead hand" should be lifted from medical teaching by annual reassignments of instructors, by the president of the university, in the interest of efficiency and on the basis of recent personal accomplishment. All examinations should be practical—to find out what the men can do, not merely how much they can remember.

The School and the Practitioner

By Dr. William J. Mayo, Rochester, Minn.

In 1880, the medical college course lasted three years and all of the teachers were *practitioners*. Students were taught *practice* from the very start. We are safe in going to professional teachers for *information* but not for advice. Detailed knowledge, such as can be found in books, is not *wisdom*. We should be teaching students how to *find* knowledge for themselves, and then how to *use* it.

Students who graduate before they are 25 years old do better than those who start practice later. The present average age of medical graduates is 27 years. The four-quarter system of instruction would save one year, and perhaps two, of the time needed for medical training. Juniors and seniors should do all or most of their work in the hospital.

The old-time practitioner is now obsolete and impractical. We are all practicing group medicine, whether we recognize it or not, for that is what we do every time we send a specimen to a laboratory or call upon a specialist for advice or suggestions.

Public Health Work

By Dr. Walter S. Leathers, Vanderbilt University, Medical Dept., Nashville, Tenn.

The physician must become, more and more, the adviser in hygiene and preventive medicine and must take more part in community health work. The medical school must train him to do this.

There is a great and growing need for trained health workers, and schools of public health are being established, but not enough medical graduates are taking it up as a specialty.

There should be a department of preventive medicine and public health in the university, correlated with the medical school and other departments and with the municipal, state and national health agencies and offering undergraduate and graduate instruction in the *actual performance* of such work as all sorts of sanitary inspections—water, milk, sewage, etc.; the control of tuberculosis; the study of free clinics, child welfare, school inspection, morbidity reports and other sociologic matters having economic and industrial as well as personal aspects. The students should be watching for *preclinical* signs of disease and undertaking epidemiological studies.

The Dispensary in Medical Education

By Dr. George E. Shambaugh, Professor of Otolaryngology, Rush Medical College

The out-patient clinics are not abreast of the hospitals in organization, equipment or personnel. There should be graduate workers in the dispensaries, like the internes and residents in the hospitals, actually doing the work. These men would be gaining valuable graduate instruction in the specialties. This would be the best way to increase and improve the out-patient service.

Such a service, if in charge of capable and enthusiastic men who would exercise constant oversight and inculcate the spirit of clinical research, would benefit not only the graduate workers, but also the patients, the staff and the undergraduates. The patients would receive better and more individualized attention; the staff men, relieved of much routine work, could devote more time to the study of rare and difficult cases and to teaching; and the undergraduates would receive more detailed, personal supervision and assistance.

Medical Instruction in Europe

By Dr. Louis S. Wilson, Director, Mayo Foundation

In almost all fields of medical education, work of the highest quality is now available in the United States, but not enough of it. Europe offers many centers for such work and in addition has the background of history, art and other influences which tend to broaden the mind.

Americans are welcomed everywhere in Europe, except in Russia. In Holland, Switzerland, Italy and Czechoslovakia conditions are especially good and the universities are crowded.

European instruction is better than ours in internal medicine, tropical medicine, dermatology, roentgenology and orthopedics. Autopsy material is much more copious than it is here, so that one can see from 800 to 2,000 postmortems in a year.

The best time to go is between October and May. Short-time students will find best work in Vienna and Berlin. Clinical assistants who are willing to work for from 6 months to 2 years, without pay, in order to get the instruction, can find places, in any line *except* operative surgery, if they are well introduced and authenticated by schools or hospitals with which they are connected here. One does not need to go to Europe for research work in the preclinical branches

or for operative surgery, as there is plenty of good work here.

The system of teaching is different over there. Most of the work is done under certain men, personally, and not in organized classes. Arrangements must be made directly with the professors. In Great Britain, the "Fellowship in Medicine" and the "American University Union" can give the student a great deal of help.

Before undertaking graduate work in Europe one should have a good working knowledge of German, French and Italian. If one does not know these languages it is better to go to England for one's work.

A Great Need of the Medical Schools*

By The Rev. R. E. Vinson, President
Western Reserve University

One of the reasons why the medical schools cannot turn out physicians as fast as the needs of the country seem to require is that there are not enough teachers of the proper type to staff the schools as they are

* This address was delivered at the meeting of the American College of Physicians at Cleveland, Ohio, Feb. 20, 1927, but seemed so thoroughly a part of this discussion that it is included here, rather than with the report of the meeting of the College, which will appear next Month—L.

at present, to say nothing of trying to increase their number or their capacity. We have been searching for two years to find a man for one of our departments who has the requisite amount of zeal and devotion, combined with technical and teaching ability.

Applied science has now practically caught up with research and the number of men who are engaged in creative, original work in the fundamental sciences is insufficient to keep pushing ahead with the researches. That is not strange when one considers the greater remuneration which comes from the practice of clinical medicine; but if we are to go forward in scientific advancement we must have more *missionaries*—more men imbued with the unquenchable ardor of discovery—who are willing to bury themselves in their studies in order that the profession and the world may go forward.

We are trying to train a certain proportion of our students who seem to possess possibilities in this line so that they will go into research work in pure science and thus fill the ranks of the discoverers of the future.

The Prophylaxis and Treatment of Hay-Fever and Asthma by Means of Pollen Filters

By MILTON B. COHEN, M.D., Cleveland, Ohio

IN March, 1926, the writer¹ reported that a filter had been devised which would completely remove all the pollen in an incoming air stream, thus rendering any room pollen-free and keeping it pollen-free so long as the filter was operated.

The filter consists of a motor-driven suction fan, attached to a sheet-metal box which holds the filters. The details of the construction and the general appearance of the apparatus are shown in the diagram and photograph. The entire machine is placed on the window sill of an open window (a metal slide covers the rest of the window) and the sash is pulled down snugly against the top of the filter. The motor is then started. At once, dust- and pollen-free air is sucked into the room at the rate of 150 cubic feet per minute. This large amount of air entering soon produces a slight posi-

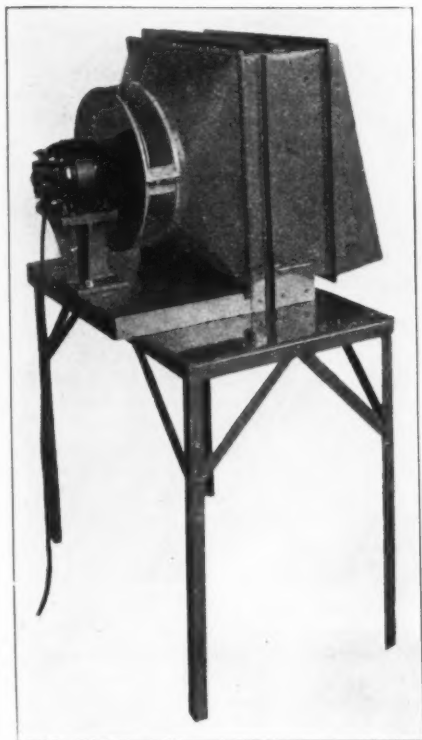
tive pressure within the room and the old air begins to leave through all the other openings. The air in the average bedroom is thus changed in from 5 to 10 minutes.

As a result of the operation of one of these filters during the 1925 ragweed pollenation season it was demonstrated that patients with hay-fever improved within a few hours after entering a pollen-free room and in a day or two were completely relieved. Those with severe asthmatic attacks usually required several days longer to obtain complete relief.

Early in August, 1926, six of these filters were placed at my disposal for further clinical tests. The following case histories illustrate the results which were obtained:

Case Histories

Case 1.—L. C., age 34, male; has had perennial attacks of asthma since coming to



The Pollen Filter.

this country from England 15 years ago. He had tried several climates without relief. When first seen by me he was completely studied. No definite sensitization could be demonstrated except, by hypodermic test, to the pollens of orchard grass, timothy and short ragweed. The chest showed a well marked chronic emphysema with marked bronchitis and mediastinitis. There was no demonstrable tuberculosis, either by roentgenological or laboratory examinations.

In June, 1925, there was an extremely severe exacerbation of asthma which lasted until about August 1. On August 18, following a ride in the country, very severe asthma again recurred and he was soon in an asthmatic state, requiring eight to twelve injections of 5 minims of epinephrin each 24 hours to allow even difficult respiration. From August 18 until October 1 the attack never ceased. From October, 1925, until May 15, 1926, there was gradual improvement, though he was never able to return to work and required from 4 to 6 injections of epinephrin daily.

In June, 1926, an exacerbation, due to grass pollen, supervened. I saw him August 5, 1926, and, on August 10, placed a pollen filter in his room and started it up.

He has been in this room constantly except for the short time necessary daily to attend his natural functions. No pollen has appeared on plates exposed in this room. There have been no exacerbations of his symptoms and no epinephrin has been used.

Case 2.—N. C., age 30, female (the wife of patient L. C. mentioned above); has had fall hay-fever for 10 years. On August 18, 1926, symptoms began. She was advised to sleep in the pollen-free room and to spend as much time there as possible during the day. During the first two days she averaged 18 hours daily in this room. Her symptoms disappeared entirely. She finds that she can be out from 4 to 8 hours daily without symptoms, depending on the pollen concentration in the air on the particular day.

Case 3.—J. C., age 35, male, occupation physician; has had hay-fever without asthma every September for many years. He has usually planned a vacation to the Canadian fishing grounds during the hay-fever season. Two years ago he had pre-seasonal immunization with ragweed pollen without relief.

Symptoms began this year (1926) about August 18. On August 25 a filter was placed in his bedroom and one in his office so that he was able to be in pollen-free air from 12 to 16 hours daily. He noted marked improvement when he remained 12 hours daily in filtered air and very marked improvement when remaining 16 hours. He has been able to remain at home with practically no discomfort for the first time in a number of years.

Case 4.—F. L. J., age 50, male, occupation consulting engineer in dust collecting; has had grass and ragweed hay-fever and asthma every year for 18 years. The attacks totally incapacitated him, so that he was usually unable to attend to his work until the middle of winter. Last year he spent the fall season in Europe and escaped his symptoms. This year coseasonal immunization with grass pollen afforded relief from the early symptoms. Because of his business affairs, only about half of the pre-seasonal ragweed immunization was completed.

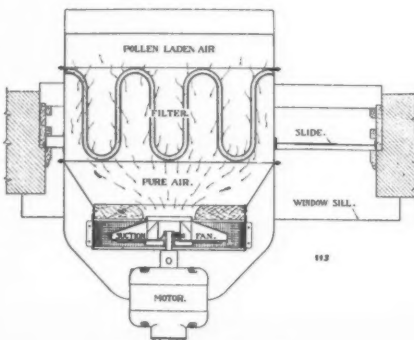


Diagram of Pollen Filter.

He was perfectly well until August 27, when a severe attack of asthma came on while he was in Detroit. The symptoms were very severe on August 30, despite hypodermics of epinephrin to the toxic limit, every hour or two. On August 31, at noon, a filter was placed in his bedroom window. Within 36 hours the acute attacks ceased; there remained a hacking cough. On September 2 he went to his office for 3 hours but returned to the pollen-free room, remaining over night and returning to his office the next day. At this time there were no symptoms.

For the next three days he remained at home in the pollen-free room. Since Sept. 6 he has been in the room from 14 to 16 hours daily and has been entirely free from symptoms, except for one day when he experimented with himself and remained away from home for 16 hours. The hay-fever, which was severe that night, had entirely disappeared by the next day.

Case 5.—S. G., age 39, the mother of two children, has found it necessary to go to northern Michigan annually, late in August, to avoid severe attacks of asthma. This year, because of the illness of her baby, she was unable to get away before severe symptoms began.

When seen for the first time on September 2, 4 doses daily of ephedrine sulphate, 50 mgm. each, were required to control the severe asthmatic paroxysms. A filter was placed in her bedroom window on September 3. She remained constantly in this room, except for bathroom privileges, until September 7, when the attacks had ceased and symptoms had practically disappeared.

Case 6.—B. F., age 50; has had severe asthma every summer and fall since girlhood. Last year (1925) she was in a pollen-free room at Mt. Sinai Hospital for one week, during which time the attacks ceased. On August 15, 1926, a filter was placed in her bedroom window. She has remained in the pollen-free room 20 to 22 hours daily and is completely relieved. On one day she spent 6 hours in her kitchen where there was a high ragweed pollen concentration in the air. The attacks that night were severe but in 24 hours they had entirely disappeared.

Several other patients have been treated at various times in similar rooms, with results quite like those described above.

Many simple devices have been tried in attempts to free rooms of pollen and other air-borne substances. The only published references to the successful treatment of patients in "miasm free" rooms are found in the writing of W. Storm Van Leeuwen.¹ He built hermetically sealed rooms in patients' homes and ventilated them by means of motor driven fans, filtering the air through cotton. He found that many patients are sensitive to air-borne substances of unknown nature which were removed by his air filters. Many of the patients are relieved if they remain in their

socalled "miasm free" rooms for 10 to 12 hours daily; others require continuous occupation of one of these rooms for from 3 to 5 days to become symptom-free. They may then go out for a number of hours daily without symptoms, the length of time allowed in unfiltered air depending on the individual patient's resistance, and the amount of the offending substance in the air. Leopold² has experimented with the effects of temperature and moisture changes in a room made dust-free by means of an air-washing device. He found that atmospheric changes failed to induce attacks or to relieve them but that cases with dust asthma obtained relief in this room.

Our experience with patients showing pollen allergy corroborates the findings of Van Leeuwen. Within the next few months we will report the results of the treatment with filtered air of patients allergic to substances other than pollens, and those in whom no specific allergen can be demonstrated.

Summary and Conclusions

1.—A filter has been devised which can be used in any home and which effectively produces and maintains a pollen-free atmosphere in any room.

2.—By means of these filters, pollen-free rooms have been produced in patients' homes and the effect on the patients' symptoms studied.

3.—Depending on the patient's sensitivity and the air pollen concentration on any given day, from 10 to 24 hours breathing of pollen-free air, daily, is required to avoid symptoms.

4.—Patients with hay-fever without asthma require from 24 to 36 hours breathing of filtered air to become symptom-free, and can remain symptom-free by remaining in a pollen-free room for a number of hours a day.

5.—Patients with severe asthmatic seizures require from 3 to 7 days to become symptom-free. They also may be away from the pollen-free room for a variable number of hours daily without recurrence of symptoms.

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A New Protein Test of a Cause of Vomiting in Pregnancy

By HENRY R. HARROWER, M.D., Glendale, California

IT is well known that certain individuals have an abnormally low resistance to the effects of certain protein substances. As a result, these individuals have a tendency to develop various unpleasant symptoms known as hypersensitiveness, protein toxemia, anaphylaxis, or allergy.

The origin of the irritating proteins is variable. They may be plant pollens and their entrance into the body through the air passages may cause hay-fever, asthma, rhinitis, etc. Or they may be present in certain foods to which some individuals happen to be particularly sensitive. The sensitiveness to these substances makes these foods virtually poisonous to these persons. Commonest among such offending foods are shell-fish, eggs, strawberries, tomatoes, and even milk.

The sensitiveness to certain proteins is an individual matter and many times cannot be satisfactorily explained. This is just as true for intolerance to certain foods, as in cases with a tendency to asthma and to hay-fever. In the matter of food anaphylaxis, we must assume that the organism is not able to elaborate adequate or suitable proteolytic antibodies to break down certain of the ingested proteins. Hence the intoxication which gives rise to the anaphylactic manifestations. A similar explanation may be suggested for protein split-products of other derivation which circulate in the blood and may be carried to various parts of the body where they then cause irritation.

Another common source of anaphylaxis-producing substances is a focus of infection, particularly in patients with chronic bronchial disease. In such instances, the toxic substances are believed to be bacterial cleavage products. Allied to this is the not infrequent condition known as alimentary parasitosis where the waste products of certain organisms, such as ameba coli and giardia (like the bacterial split-products), are rank poison to the unfortunate host. This last form of protein sensitization is not yet so fully appreciated as are the types mentioned just previously.

Sensitiveness to Placental Proteins

There is still another form of protein poisoning to which I wish to call special

attention; namely, the toxemia of pregnancy. For about ten years, I have recommended placenta therapy as a rational means of controlling severe and intractable vomiting of pregnancy. My suggestions were based upon the assumption that hyperemesis gravidarum resulted from a form of sensitiveness or anaphylaxis to certain new placental proteins—possibly toxic; possibly not—to which those women who developed serious nausea and vomiting during pregnancy evidently were peculiarly susceptible. Irritation of the vagus, by these toxic substances, is believed to be responsible for the nausea and vomiting.

At all events, on the strength of this not unreasonable assumption, I recommended an attempt to produce an immunity in these victims by gradually increasing doses of a product from the placenta, prepared so as to contain small amounts of the supposedly offending toxic substances. The clinical results from this measure long since have justified both my assumption and the empirical therapy based upon it, and now this method and the placental preparation originated by me are used with approximately 70 percent of real control, no matter how serious or advanced the cases may be.

Diagnosis of Sensitiveness

The reader doubtless is well aware that anaphylaxis and allergy are now being diagnosed by recourse to a series of skin reactions which are brought about by a large number of "protein sensitization tests." It is with this fact in mind that I wish to call attention to some new possibilities in the study as well as in the control of the nausea and vomiting of early pregnancy and of hyperemesis gravidarum.

If the fundamentals of our knowledge of anaphylactic reactions hold good—and there is no reason why they should not—it should be possible to develop a protein sensitization test not only for the toxemia of pregnancy but for the early differentiation of those cases that will respond to the form of immunizing organotherapy (with placenta products) which has proved so successful. In other words, we may be able to build a satisfactory scientific background for the empirical notions which at first were based

upon pure assumption and, later, upon the fact that their application had proved of undoubted advantage, despite the charge of "coincidence" and the other explanations offered by critics.

A series of dilutions of these same placental proteins has been prepared for use in a skin test which in every way corresponds to the many tests with different proteins now available for this purpose. The procedure is identical with these, and the deductions are comparable.

The method suggested is as follows: Wash an area on the upper arm (or elsewhere, as desired); paint with tincture of iodine; wash off the iodine with alcohol; allow it to dry; then, with a scarifier similar to that used in vaccination (or with a sterile needle) make four slight scarifications from one to

two inches apart. Upon each of these denuded areas, deposit one drop from each of the capillary tubes supplied, which represent three strengths of the dilution, A, B, and C; while D is sterile water for the control. Allow the drops to dry thoroughly. Protect with a piece of sterile gauze.

These vaccinations should be inspected at twenty-four-hour intervals and a note made of their appearance. The clinical deductions in regard to the reactions of various patients are made upon exactly the same basis as are those with other protein sensitization tests. The final diagnostic conclusions have yet to be made, but logically they should be most interesting, and they may be helpful in elucidating still further this particular phase of a subject regarding which everything is not yet known.

Nasal Obstruction As A Specific Cause of Headache

By F. A. WIER, M.D., Racine, Wis.

A FRACTURE of the nose involving either bone or cartilage or both, if not treated or improperly treated, may unite in a twisted or deflected position, thereby causing obstruction to proper respiration, ventilation and drainage, all of which are absolutely necessary to maintain a healthy condition of the nasal passages and the accessory nasal sinuses.

An obstruction, in the course of years, becomes more aggravated by concomitant complications, such as an enormous hypertrophy of the middle turbinate on the concave side of the deflection, causing, eventually, more obstruction to respiration, ventilation and drainage; and, by direct pressure by the convex side of the septum against the middle turbinate on the same side, a more rapid obstruction to drainage and the prospect of sinus infection at any time, as well as polypoid degeneration of the middle turbinates and ethmoid cells, and infection of the sphenoid and frontal sinuses. This condition is a positive cause of headache and can be positively cured by the proper surgical procedure.

A few case histories will suffice to prove the truth of the above statement.

Case Histories

Case 1.—Mrs. A., age 25. History of injury to nose in childhood. Septum deflected to left; right middle turbinate very large.

About once a week would be confined to bed with "sick headache".

Operation.—Submucous resection; right middle turbinate fractured and elevated; round window into ethmoid cells. Left middle turbinate fractured and elevated away from lateral wall where it was tightly pressed; round window into ethmoid cells. On account of her age, the middle turbinates were not removed as they will usually assume normal size when the pressure is relieved and they do not already show polypoid degeneration.

Subsequent History.—No headache for two years. Became pregnant and, after giving birth to a child, headaches recurred on the left side. Consulted a surgeon, who did a hysterectomy which failed to have any effect on the headaches. She consulted me again, and I found on examination that the left middle turbinate was very large and polypoid. This was removed and the ethmoid cells cleaned out.

Result.—Headache stopped immediately, with no recurrence in seven years.

Case 2.—Mr. K., age 50. History of injury to nose thirty years before. For past twenty years had had terrific headaches; would have to quit work and go home. At these times his eyes would become inflamed; conjunctiva very red and sometimes so swollen as to bulge out between the lids. He considered his trouble due to his eyes. Consulted several specialists in Milwaukee and Chicago. He was treated for nearly all of the eye diseases, but most of the doctors made a diagnosis of glaucoma. He accumulated quite a stock of glasses during this time, in spite of the fact that his vision was normal.

He consulted me during one of his headache explosions, and wanted to know if I could do anything for his eyes. After taking his history I suspected that the trouble was in his nose. I asked him if he had any nasal obstruction and he replied that he had been unable to breathe through his nose for years.

A rhinoscopic examination revealed both middle turbinates so large as to close the nasal passages.

He was told that the cause of his trouble was in the nose, and that an operation would cure him. He said, "You are the first doctor that ever examined my nose and I believe you have found the cause, because I have often wondered if my nasal condition had anything to do with the headaches."

We made an appointment to perform what I considered a rather simple operation—a double turbinectomy and exenteration of the ethmoid cells. Imagine my surprise when I found that I could not cut the turbinate loose from its superior attachment with an Andrews chisel or a turbinate scissors. The turbinates had apparently turned to bone, so I had to use a V-shaped chisel and a mallet, after which I found that a nasal snare was not strong enough to cut through the remaining portion, so I threaded a tonsil snare with a No. 8 wire and by main strength managed to sever the turbinate, which had literally become ossified. The other turbinate was removed two weeks later and was found to be in the same ossified condition and just as difficult to remove.

Result.—The headaches stopped immediately and, in the course of a year, the patient gained forty pounds in weight.

Case 3.—Miss C., age 30. Thin, anemic. History of a fall on the nose in childhood. For past fifteen years has had severe headaches, also hay-fever and asthma.

Examination showed septum deflected to right, high up, and a twist to the left side, low down—a so-called letter S shape. Both middle turbinates large, with polypoid degeneration.

Operation.—A submucous resection, double turbinectomy and exenteration of the ethmoid cells.

Result.—Complete cure of headaches, hay-fever and asthma. But there is always a fly in the ointment. She has gained fifty pounds and threatens to sue me for ruining her girlish figure.

Case 4.—Mr. H., age 50. History of left frontal headache for twenty years. No history of injury to nose. Developed what he called a "boil" about 10 mm. above inner canthus of left eye. This was lanced by a physician. Considerable discharge of pus. Wound refused to heal. The patient became much alarmed, as some kind-hearted old lady told him it was a cancer.

I saw it four weeks later, when it looked like a small strawberry. I curetted out the granulations and noticed that as fast as it was wiped out a small drop of pus would again appear. I pressed a small silver probe into this opening and was surprised to find that it led into the right frontal sinus for about two inches, through the nasal bone.

I attached a cannula to a hypodermic syringe and washed a large amount of old pus out of the sinus. This was repeated every day for a week when it was no longer possible to introduce the cannula as the canal had closed. A week later I removed a large right middle turbinate and exenterated the ethmoid cells so that the sinus could drain through its natural opening. I refrained from probing this for fear of lighting up a fresh infection.

Result.—The headaches stopped at once and there has been no recurrence in the past four years. The remarkable thing in this case is that nature performed a successful frontal sinus operation at the lowest point.

Case 5.—Mrs. B., age 45. History of headaches and poor health for years. No history of injury to the nose. For past year has suffered with neuritis of left arm and leg.

Examination.—Septum slightly deflected to the left side; both middle turbinates large and boggy; entire mucous membrane more or less covered with a white, sticky discharge, hard to remove—"catarrh", as she called it. (I deny that there is any such disease as "catarrh"!) Her condition was plainly a chronic infection of the ethmoid cells, extending into the middle turbinates.

Operation.—Both middle turbinates removed and ethmoid cells exenterated. The cells were full of pus which flowed out freely.

Results.—Headaches stopped at once and the nasal discharge in three weeks. Four weeks later the neuritis had entirely disappeared. She was seen four months after the operation. Has gained fifteen pounds, looks and feels fine.

Case 6.—Mr. C., age 40. History of accident at age of 12. Fractured leg, arm and nose. Has been in poor health ever since. Has had spells of the most terrific headache and stomachache combined. These came on rather suddenly, with such force that he would scream and drop in his tracks, grasping his head in both hands and compressing the temples and back of his neck with all his strength. After a time there would be a watery discharge from the nose and he would get some relief. Needless to say, he had made the rounds of all the healers. He had been puked and purged and dieted without result. He had only recently gone through a clinic where everything is supposed to be examined and came out with a diagnosis of sick headache and a bill for \$25.00. As he had become tired of rubbing his own neck, he went to an osteopath. This particular osteopath knows how to use a nasal speculum and a head mirror and diagnosed the case. Mr. C. was referred to me, and told me bluntly that he had lost all faith in doctors.

Examination of the nose showed a terrible condition: The septum had an almost acute right angle deflection to the left, at the junction of the nasal bone and cartilage, then curved back to the right at the end of the septal cartilage. This space was filled by a large middle turbinate and six polyps.

The left middle turbinate was hidden behind the deflection.

The operation consisted of a submucous resection (without a perforation); double turbinatectomy and exenteration of the ethmoids; and opening of the sphenoids. This was all done at one sitting and required three hours.

Result.—Mr. C. is completely cured of his headaches and, of course, feels better in every way. Can eat anything and lots of it. No more stomach trouble. (Of course,

there was nothing the matter with his stomach, anyway. The pain was reflex, from his head.)

"Sick headache"? Of course, you are sick when you have a headache.

The fact that headaches have been the cause of insanity and suicide, to say nothing of untold suffering and life-long invalidism, renders the subject worthy of our best efforts.

313 Sixth St.

The Technic and Interpretation of Urinalysis

By A. E. HUDSON, M.S., F.R.M.S., M.R.S.I. (Lond.), Freeport, Illinois

Director of Laboratories, Evangelical Deaconess Hospital.

AFTER all that has been written on urine and its study, it is indeed a peculiar fact that there are many physicians who go through their work day by day, case by case, without examining their patients' urine, other than testing for the presence of albumin in the specimen from a forthcoming confinement case.

In the practical analysis of urine such as is customary for clinical purposes, little apparatus is needed, and any money invested in such apparatus comes back with good interest.

The examination of the urine is one of our greatest aids in clinical diagnosis. It shows us how the system is handling the material brought to it. It is to be remembered, however, that no urine examination with abnormal findings is of absolute value unless the clinical data are taken into consideration.

Apparatus

The most expensive piece of apparatus needed is a good microscope; and without it a complete examination of the urine is impossible. The other apparatus should consist of the following materials and solutions:

- 1 microscope
- 1 alcohol lamp (cap. 4 oz.) or bunsen burner
- 1 doz. test tubes (5 by $\frac{3}{8}$ or 4 by $\frac{1}{2}$ in.)
- 1 albuminometer
- 1 urinometer with jar; graduated 1000 to 1060
- 1 book of red and blue litmus paper
- 1 centrifuge (hand or electric), with tubes
- 1 acidimeter
- 1 saccharometer
- 1 ureometer
- 1 indicanometer
- 3 medicine droppers
- 1 50-cc. burette

- 1 2"-diameter evaporating dish
- 2 100-cc. Erlenmeyer flasks
- 8 oz. Haines' solution (qualitative and quantitative)
- 8 oz. acetic acid c.p. (glacial)
- 8 oz. sulphuric acid c.p.
- 8 oz. nitric acid c.p.
- 8 oz. hydrochloric acid c.p.
- 8 oz. Haines' quantitative solution
- 8 oz. Obermeyer's reagent
- 4 oz. chloroform
- 4 oz. benzidine (for blood test)
- 8 oz. Esbach's solution (for quantitative albumin estimation)
- 8 oz. ferric chloride
- 8 oz. sodium hydroxide solution N/10
- 2 oz. phenolphthalein—1-percent solution in alcohol
- 1 test tube stand.
- 1 burette stand
- 1 gross glass slides (for microscopic examination of sediments)

The urine sent for analysis should be a 24-hour specimen, the day and night voidings being kept separate. The reason for this is that the presence of albumin, sugar, or a high or low specific gravity in a single voiding reveals nothing of diagnostic importance, on account of the variations during the day under the influence of food, lung and skin activity, etc. In the 24-hour specimen these variations are overcome, unless a true pathologic condition is present. The total volume of urine voided is taken into consideration with the specific gravity; a large volume with a low gravity indicates interstitial nephritis while a large volume with a high specific gravity indicates diabetes mellitus.

The specific gravity of all normal urine should be between 1.010 and 1.025. Upon the intake of fluids will depend whether the gravity be low or high. Urine with pathologic variations may show a specific gravity varying from 1.002 to 1.060 or even more.

Constituents found in Urine

Albumin.—The most important proteid found in the urine is *serum albumin*. Small amounts may be found in well persons but a greater output is of vast clinical importance.

Distinction should be made between true and false albuminuria; true albuminuria being limited to cases in which there is renal epithelium disturbance, including, of course, those cases of purely functional albuminuria having no distinct kidney lesion. False albuminuria is due to albumin derived from the urinary tract below the kidney, as when blood, pus or lymph is mixed with the urine.

Another type of albuminuria is functional, due to excessive exercise and found in athletes, disappearing as the subject becomes accustomed to the increased exercise. We may find albuminuria after a heavy protein meal. This is termed alimentary albuminuria.

An intense albuminuria, in acute nephritis, is important; the larger the amount of albumin the more acute the case. Cases of nephritis of syphilitic origin show the greatest albumin output. In chronic parenchymatous nephritis the amount may exceed that found in the acute form.

Urea.—The most important nitrogenous substance in the urine and its chief organic constituent is urea. Half of the nitrogen taken into the body is excreted by the kidneys in this form. Owing to the physiologic conditions this amount varies, the main variation being due to the amount of proteid food digested. A low-protein diet may show only 15 to 20 Gms; while 70 to 80 Gms. may be present on a rich nitrogenous diet.

The urea percentage varies according to the urine concentration, the normal amount being 2 percent. Females excrete somewhat more urea than males. In early fevers, diabetes insipidus and mellitus, after warm baths, heavy exercise, or injection of ammonia compounds, the amount is increased; but in chronic kidney diseases, vomiting, diarrhea, normal pregnancies and degenerative liver conditions the amount is diminished.

Sugar (Glucose $C_6H_{12}O_6$).—Dextrose, glucose or grape sugar is the only carbohydrate of any importance found in the urine; and as the presence of albumin, temporarily, in the urine does not necessarily mean nephritis, neither does the presence of dextrose mean the existence of diabetes. A rich carbohydrate meal may give a sugar reaction

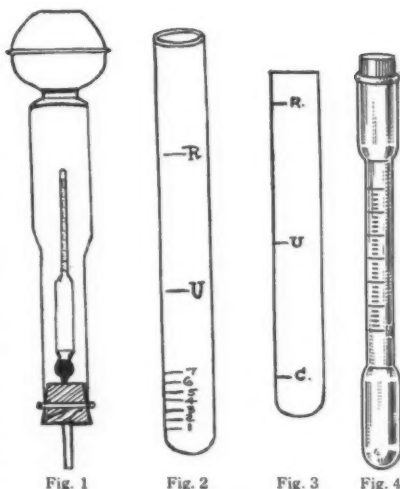


Fig. 1. Rosenbloms Device.
Fig. 2. Esbach's Albuminometer.
Fig. 3. Indicanometer.
Fig. 4. Albuminometer (Abbott)

in the urine temporarily; but when sugar is present in quantities several times, diabetes mellitus is to be suspected.

Indican (indoxyl potassium sulphate— $C_8H_7NOS_2KO$) is formed from indol (C_8H_7N), one of the products of intestinal putrefaction of albuminous substances. The indol, after being absorbed from the intestine, becomes oxidized to indoxyl (C_8H_7NO), combines with the potassium sulphate and forms indoxyl potassium sulphate or indican. This is eliminated with the urine. Indican is present in normal urines, but an excess shows that the patient is suffering from a protein-putrefaction, taking place, in most cases, in the intestines, although sometimes in other parts of the body. In cases of diarrhea with the presence of an excessive amount of indican, febrile retention is indicated.

Bile.—The normal urine does not contain bile pigments. They may occur in the urine when the passage of bile into the intestines is interfered with; when an associated obstruction of the bile ducts is present; or when an increased formation of the biliary pigments from the blood pigments has occurred. Urine containing bile may show various colors, varying from greenish-yellow through yellowish-brown, dark brown, greenish-brown to deep green. On shaking the urine a greenish-yellow foam is noted, while in a normal urine this foam is nearly colorless. Urine which contains bile will

always show nuclealbumin mixed with a light trace of extraneous albumin.

Tests

The method of taking the *specific gravity* is too well known to waste space in describing it, but it might be worth while to say a few words regarding Rosenbloom's device (Fig. 1). It consists of a urinometer enclosed in a glass tube, fitted with a rubber bulb. By means of the bulb the urine is drawn into the tube until the urinometer floats and the specific gravity is read in the usual way.

Albumin.—For the detection of this substance in the urine it is desirable to render the urine clear by filtration. Should the specimen be alkaline, enough acetic acid should be added to make it acid to litmus. Should bacteria in alkaline urine be abundant, some of the bacterial proteins may go into solution and give the test for albumin. There are many tests used in detecting albumin, but the oldest and one of the best is the *nitric acid and heat test*.

Boil 5 cc. of urine in a test tube; add 1 to 4 drops of concentrated nitric acid. A white cloud denotes the presence of albumin. A similar white precipitate, which *disappears* on the addition of the acid, is due to the presence of earthy phosphates.

Quantitative Estimation of Albumin. Esbach's Test.—The urine must be clear, and acid in reaction. Filter and add acetic acid if necessary. The Esbach tube is as shown in Fig. 2, marked "U" near the middle; "R" near the top; and graduated $\frac{1}{2}$, 1, 2, 3, 4, etc., near the bottom.

The tube is filled up to the mark U with the urine, and the reagent is added to the mark R. Close end of tube with stopper; invert several times; let stand in cool place. In 24 hours read the height of the precipitate.

The *Albuminometer* consists of a clear glass tube as in Fig. 4, arranged so that the bulb contains a little less than 5 cc. The 5 cc. mark "R" is accurately made on the narrow portion of the tube which from this point is graduated in tenths of a cc. for 3 cc. The end is made large to permit easy filling.

Fill the tube to mark "R" with 5 cc. of reagent—phosphotungstic acid solution. The urine, having been diluted 1 in 10, is added drop by drop, shaking between each addition, until a faint white cloud appears. The reaction is now complete. The amount of diluted urine is read off the scale. This amount contains one-tenth of a milligram

of albumin. Computation must be made according to the dilution.¹

Sugar.—Albumin, if present in the specimen, should be removed by acidifying with acetic acid, boiling, and filtering.

Haines' Test.—This is one of the best of the copper-tests which depend upon the fact that strongly alkaline solutions with glucose reduce cupric hydrate to cuprous hydrate (yellow) or cuprous oxide (red). They are somewhat inaccurate because they make no distinction between glucose and the less commoner forms of sugar and because certain normal substances such as mucin or uric acid, when present in excess, and some drugs such as chloroform, chloral, morphine, aspirin, etc., may reduce copper. To minimize such fallacies dilute the urine, should it be concentrated; *do not add more than the specified amount of urine; and do not boil after the urine is added*. Should chloroform be used as a preservative, remove it by boiling the urine, prior to making the test.

Technic.—Take 4 cc. of Haines' solution in a test tube, boil, examine for precipitate, and if none is present add 6 to 8 drops of urine. *Keep the reagent hot but do not boil*. A yellow or red precipitate which settles to the bottom shows the presence of sugar. Neither precipitation of phosphates, as a light flocculent sediment, nor simple decolorization of the reagent should be mistaken for a positive reaction. This test detects about 0.1 percent of dextrose.

Quantitative Estimation.—Place in a small flask 25 cc. of Benedict's quantitative solution and add to it 10 to 20 Gm. of sodium carbonate crystals (or one-half the weight of anhydrous sodium carbonate may be used) and a small quantity of talcum. Heat to boiling point. Let urine flow from a burette into flask, drop by drop, until a chalky-white precipitate forms and the blue color fades. Add a few more drops of urine, carefully, until the blue color entirely disappears. This is the end-point. It should be remembered that the solution in the flask must be kept boiling vigorously throughout the whole procedure. Read from the burette the number of cc. it took to discharge the blue color; this represents exactly 0.05 Gm. of dextrose. Calculate the percentage.

Indican Test.—There is a simple little instrument known as the indicanometer, which permits a definite comparative test for indican. It consists of a glass tube, graduated as in Fig. 3, in which 5 cc. of

the urine may be mixed with 2 cc. of chloroform. The technic is as follows: The tube is filled to mark "C" with chloroform, then urine is added to the mark "U" and Obermayer's reagent (2 pro-mille solution of ferric-chloride in concentrated hydrochloric acid) to the mark "R". The tube is then closed with stopper or the thumb and vigorously shaken for a few seconds. It is then allowed to settle and the blue color, due to the indigo-blue (from the oxidized indican present and dissolved in the chloroform) may be judged as; zero, trace, plus or double plus. It should be remembered that albumin forms a slight blue color with hydrochloric acid and it should therefore be removed before performing the test. In place of Obermayer's reagent, the tube may be filled to mark "R" with concentrated peroxide of hydrogen.

Bile

Gmelin's Test.—Place 5 cc. of urine in a test tube and let a few drops of slightly yellow nitric acid flow gently down the side of the tube so that it just overlaps the urine (do not mix). A play of colors—green and violet are the most distinctive—denotes the presence of bile pigments.

Test for Bile Acids.—The following test is based upon the fact that bile acids in the urine lower its surface tension.

Place freshly-passed urine in a glass beaker, to a depth of $1\frac{1}{2}$ to 2 inches and, while holding it at the level of the eye, sprinkle on the surface, in the center of the beaker, a little finely-powdered, dry, sublimed sulphur.

If the urine is free from bile acids the sulphur will float upon the surface. If, however, these acids are present, the particles of sulphur will sink, the promptness with which they do so depending upon the concentration of the acids present. If they sink at once, bile acids are present to a degree of 0.01 of 1 percent, or more.

This test is important for the detection of the early stages of hepatic diseases or biliary obstruction or stasis.

Urea

Quantitative Estimation.—The hypobromite method may be used, but this is very inaccurate, because it gives more nearly the total nitrogen than the urea. The apparatus used here is of course the well-known ureometer. The writer prefers the following method of Marshall.

Technic.—(A). Measure into each of two 200-cc. flasks, 5 cc. of the urine to be tested, add about 100 cc. water, and to one flask

add 5 cc. of water in which two tablets of urease powder (especially prepared for this test by Hynson Westcott & Dunning, of Baltimore. Each tablet weighs 0.025 Gm.) have been crushed and dissolved.

(B). Overlay the fluid in each flask with about 1 cc. of toluol; cork flasks; let stand 12 hours or place in incubator at 37°C. for 3 hours.

(C). After this period, titrate contents of each flask to a distinct pink color with deci-normal hydrochloric acid, using as an indicator a few drops of a 0.5-percent solution of methyl orange.

(D). Find the difference between the number of cubic centimeters of deci-normal acid used in the two titrations (flasks "A", with tablets, and flask "B", without). Multiply this difference by the factor 0.06 to obtain urea percentage. From this percentage the amount in the 24-hour specimen may be obtained.

Test for Blood.—In this method the reagents employed are a saturated solution of benzidin in glacial acetic acid and hydrogen peroxide. Mix about 5 cc. of each reagent in a test tube and add about 4 to 5 cc. of the mixture to 4 cc. of urine. Should hemoglobin be present a distinct blue color appears. A negative result proves the absence of hemoglobin.

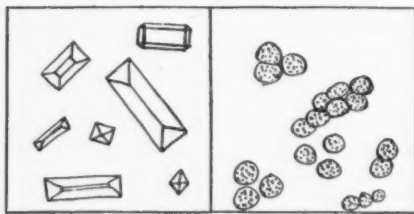
Microscopic Examination

It is not proposed to go to great lengths on this part of urine examination, but merely to explain the methods of examination for the simple pathologic deposits.

Fresh urine should be used, and the sediment obtained by centrifuging. If no centrifuge is available, the urine should be allowed to stand in a conical glass, on ice, for 12 hours.

A small quantity of the sediment should be placed on a clean slide, with a clean pipet, and examined, first with the low power (16 mm. objective) and then with the 4 mm., medium power, objective. Good illumination is the main factor in examining urinary sediments. Light should be central and very subdued, but oblique illumination, obtained by swinging the mirror a little out of the optical axis, is a great help in searching for delicate structures such as casts.

Do not try to identify objects in urine which has dried on the slide, because distortion will have occurred and urinary salts have formed. The unorganized sediment will not be discussed, as this has little clinical significance.



A. Triple Phosphate Crystals.
B. Pus Corpuscles.

The principal organized structures are: pus corpuscles, red-blood corpuscles, epithelial cells and tube casts.

Pus Corpuscles.—Very few leucocytes are present in normal urine, particularly when mucin is present. When present in numbers they show a pathologic process, and their presence constitutes *pyuria*. The nuclei are hidden by the granules and, if a little dilute acetic acid is run on the slide, they may be brought into view. This will distinguish pus cells from epithelial cells.

Pyuria indicates suppuration somewhere along the urinary tract—urethritis, cystitis, pyelitis. Chronic cystitis gives the greatest amount of pus. Should a considerable amount of pus appear suddenly, ruptured abscess should be suspected.

Red Blood Corpuscles.—Urine containing blood is always positive for albumin. When the blood comes from the kidneys the urine has a hazy-brown or smoky color; while blood from the lower urinary tract gives a brighter color and settles in small clots.

Have the patient void in three portions. If most of the blood is in first portion, probably the bleeding point is in the urethra; if in the last portion, then it is likely to be from the bladder; if equally mixed throughout the three portions, the blood probably comes from the kidney or ureter.

Red blood cells are easily seen with the microscope. When fresh they appear as yellow discs, uniform in size. If they have been in the urine for any considerable period, the hemoglobin will be dissolved out and they will appear as colorless circles. These "shadow cells" are not always of uniform shape; they may appear pear-shaped or oval.

Blood in the urine is always pathologic, unless the urine is contaminated from the menstrual discharge, in which case the specimen is useless.

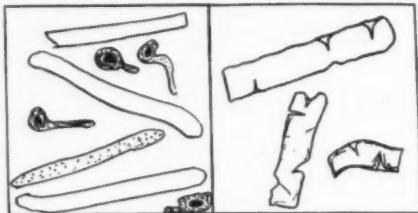
Blood comes from the kidney tubules in severe hyperemia, in acute nephritis and in renal tuberculosis and malignant disease.

In the presence of renal tuberculosis blood comes from the pelvis of the kidney.

A small amount of blood may accompany cystitis.

Hyaline Casts.—These appear as colorless, homogeneous cylinders, with rounded ends and parallel sides; sometimes opaque; generally straight but sometimes curved; may extend across several fields of the medium power; width several times that of a red blood cell.

These are the least significant of all casts. Small numbers are found in fevers, after excessive exercise and following anesthesia. They are found in all organic diseases of the kidney—most important in interstitial nephritis, in which they are seldom abundant, but their persistent presence is a significant sign of the disease.



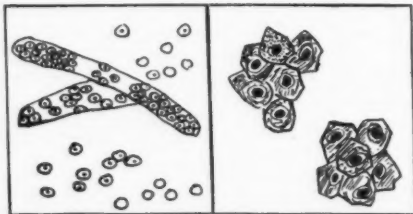
C. Epithelial Cells and Hyaline Casts.
D. Waxy Casts.

Waxy Casts.—Somewhat like hyaline casts, but contain a few granules or a cell. Much more opaque than hyaline casts, shorter and broader, irregular, with broken ends. They appear colorless or grayish, with a waxy look.

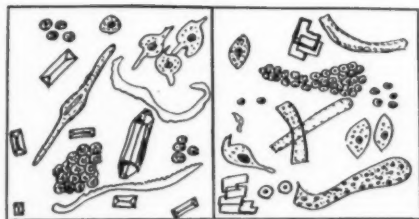
These casts are found in advanced cases of nephritis, and are an unfavorable sign. Most abundant in amyloid disease of the kidney.

Granular Casts.—These are merely hyaline casts in which fine or coarse granules are imbedded.

Epithelial Cells.—A few of these cells occur in normal urine. When abundant they indicate a pathologic condition. They are



E. Blood Casts.
F. Squamous Cells.



G. Acute, Diffuse Nephritis.
H. Chronic, Diffuse Nephritis.

divided into two groups: (1) small, round or polyhedral cells, about the size of pus corpuscles or slightly larger, containing a single nucleus. These cells come from the deeper parts of the urinary tract and are uncommon in normal urine. When they are dark in color, granular, polygonal in shape, with a large nucleus, they probably come from the renal tubules. Renal cells are abundant in parenchymatous nephritis; more so in the acute form. (2) larger cells than the above—4 to 5 times as large as a pus corpuscle—pear-shaped, spindle-shaped, or possessing a tail-like process. Each cell contains a round or oval nucleus which stands out very distinctly. These cells are derived from the transitional epithelium which lines the ureters, bladder and kidney pelvis.

Squamous Cells are large flat cells with a distinct oval or round nucleus and are derived from the superficial layers of the vagina or urethra. Those from the vagina are very large, thin, and have a cigar-roll-like effect. In leucorrhea, great numbers of these cells may be present, with pus corpuscles.

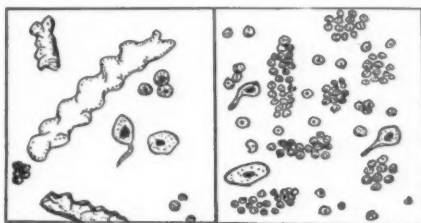
Urine Findings in Various Diseases

Acute Diffuse Nephritis.—Quantity greatly diminished; color smoky (varies with amount of blood present); usually acid in reaction; high specific gravity for first week to ten days—then from 1015 to 1020; urea diminished; albumin present ($\frac{1}{4}$ to $\frac{1}{2}$ of 1 percent); brown sediment abundant. Microscopical examination shows epithelial cells, blood and granular casts; leucocytes free and in clumps; blood globules; fatty elements appear.

Chronic Diffuse Nephritis.—Quantity from 1500 to 3000 cc.; night urine often exceeds that of the day; color pale, sometimes greenish; specific gravity from 1010 to 1015, or lower with increased urine; albumin from a large trace to $\frac{1}{2}$ or 1 percent; urea much diminished; sediment contains many round renal cells, mostly fatty; no blood unless

case is complicated; waxy casts may occur later in the disease. In a case where the parenchymatous element predominates, the quantity of urine will be nearer normal, the specific gravity and albumin high and fatty elements present to a large degree. If, on the other hand, the interstitial element predominates, the opposite occurs.

Amyloid Degeneration.—Quantity is usually above normal, may reach 4000 cc.; day amount exceeds that of the night; color



I. Amyloid Degeneration.
K. Pyonephrosis.

pale, may have a greenish tint; specific gravity between 1012 and 1018; urea may be slightly or greatly diminished; albumin, a trace (rarely exceeds $\frac{1}{4}$ of 1 percent); slight sediment contains few hyaline, granular and waxy casts; rarely renal cells; no blood unless case is complicated. Waxy casts appear early in the disease.

Pyonephrosis.—Should the pyonephrosis be unilateral and the ureter on the affected side is occluded, the urine appears like that of hyperemia. After removal of the obstruction the urine becomes turbid and of a somewhat greenish tint; odor strong and offensive; reaction alkaline; albumin is present, from $\frac{1}{4}$ to $\frac{1}{2}$ of 1 percent; sediment consists largely of degenerated and disintegrated pus corpuscles, with many round cells, and occasional blood corpuscles.

1. TABLE SHOWING AMOUNT OF ALBUMIN IN URINES OF DIFFERENT DILUTIONS

| CC. of Urine Used | Percentage | or Grams. of Albumin in 100 cc. | | | | |
|-------------------|-------------|---------------------------------|---------|---------|---------|--|
| | Dil. 1 in 2 | 1 in 5 | 1 in 10 | 1 in 20 | 1 in 50 | |
| 2.0 | .01 | .025 | .05 | .100 | .25 | |
| 1.9 | .01 | .026 | .052 | .105 | .263 | |
| 1.8 | .011 | .027 | .055 | .110 | .276 | |
| 1.7 | .017 | .029 | .059 | .117 | .294 | |
| 1.6 | .0125 | .031 | .062 | .125 | .312 | |
| 1.5 | .013 | .033 | .066 | .132 | .33 | |
| 1.4 | .014 | .035 | .071 | .142 | .357 | |
| 1.3 | .015 | .038 | .077 | .153 | .384 | |
| 1.2 | .016 | .04 | .083 | .166 | .415 | |
| 1.1 | .018 | .045 | .09 | .18 | .45 | |
| 1. | .02 | .05 | .1 | .2 | .5 | |
| .9 | .022 | .055 | .11 | .22 | .55 | |
| .8 | .025 | .062 | .125 | .25 | .62 | |
| .7 | .028 | .071 | .142 | .28 | .71 | |
| .6 | .03 | .083 | .166 | .33 | .83 | |
| .5 | .04 | .1 | .2 | .4 | 1. | |
| .4 | .05 | .125 | .25 | .5 | 1.25 | |
| .3 | .06 | .16 | .33 | .66 | 1.66 | |
| .2 | .1 | .25 | .5 | 1. | 2.5 | |
| .1 | .2 | .5 | 1.0 | 2. | 5. | |

Surgical Seminar

Conducted by GUSTAVUS M. BLECH, M.D.

[Note: The Seminar is devoted entirely to the practical interests of surgeons. Problems and their discussions are solicited. Contributors must give their names, but whenever desired these will not be published. Questions for this department should not exceed fifty words. Address all communications for the Seminar to Dr. G. M. Blech, 108 North State Street, Chicago.]

Surgical Diagnostics (Continued)

Let us revert to *withdrawal of the spinal fluid*. We have already described the instrument used, and we need but add that the technic of lumbar puncture is not so complicated as some would have us believe.

First, the anatomic basis must be appreciated before we undertake this comparatively simple procedure. This is not the place for anatomic details, but it will be recalled that the terminal conus of the spinal cord is about at the level of the second lumbar vertebra. We select the interspace between the 3rd and 4th lumbar vertebrae, and only when, in spite of good technic, no cerebrospinal fluid escapes do we enter between the 2nd and 3rd lumbar vertebrae. This will very seldom be necessary.

The procedure itself is simple. Whenever possible the patient is made to sit and bend the trunk forward so that the lower thoracic and the lumbar vertebrae are in a kyphotic position. Now a line drawn across the tops of the ilia crosses the third vertebra. The needle, provided with an obturator, is placed exactly in the middle line and is pushed into the canal while held slightly diagonally and in a slightly upward direction. The interspinal ligaments offer resistance, but with one properly directed push the needle should enter the canal—care being taken to penetrate merely the dura and not to injure the cord—and then, on withdrawing the obturator, the fluid from the spinal sac should flow rather freely into the sterile test tube or similar receptacle held in readiness. If blood escapes, the needle has deviated from the middle line, an error which must be avoided. Under such circumstance the needle has to be partially withdrawn, the obturator must be reintroduced and the needle must be reinserted in the proper place or direction.

If one desires to obtain cerebral liquid

as well as spinal, at least 20 cc. must be withdrawn; otherwise less will do.

In conjunction with laboratory methods, cerebrospinal fluid affords us a valuable means of studying spinal meningitis, encephalomeningitis, central nervous syphilis, etc.

Physical methods of diagnosis, aided by roentgenography, have lessened the need for aspiration of the chest cavity, but this diagnostic method has still a field of usefulness. The best instrument is either a long and comparatively thin aspirating needle or a trocar: the former when serous liquid has to be obtained; the latter when the contents of the affected pleural cavity are suspected to be thicker than a serous effusion (blood, pus).

Unless there is reason to select another space, the point of selection for aspiration is the posterior axillary line at the height of the 7th intercostal space, care being taken to place the aspirating needle or trocar along the upper margin of the next lower rib for the purpose of avoiding injury to the intercostal artery which runs along the lower margin of the rib.

Either needle or trocar is held firmly between the fingers or in the hand, as the case may be, and pushed through the intercostal structures with a jerk, care being taken not to enter deep enough to injure the lung.

The following suggestions may not be amiss: Strict asepsis must be maintained throughout the procedure. Local analgesia can be obtained by spraying ethyl chloride over the site of the puncture. Evacuation of liquid contents should proceed slowly to avoid hemorrhage. Clogging of the needle or trocar by particles of pus or clotted blood requires merely the insertion of a suitable wire or of the obturator. If the patient coughs, evacuation of the liquid contents must be interrupted by pressing a finger against the opening of the instrument. Save all material aspirated in a clean, sterile vessel both for measurement and for bacteriologic and pathologic study.

Aspiration of the Abdominal Cavity. Personally, I have done a number of aspirations without a mishap, but I have seen some more or less serious accidents at the hands of others, and I no longer use nor recom-

mend it, except in a refilling ascites, to afford temporary relief.

Many years ago, I committed one serious diagnostic error. I had diagnosed an ascites but as aspiration proved disappointing, I followed with an exploratory laparotomy and to my humiliation beheld the picture of a carcinosis. Never again! I swore then, and I have kept my pledge. If aspiration is needed to clear up the diagnosis, one might as well do an exploratory laparotomy, prepared to complete it therapeutically if the condition or disease prove remediable by surgical operation.

For the benefit of those who practice abdominal aspiration, when certain that we have to deal with an ascites, it is recalled that the aspirating needle should be inserted only where fluid contents are certain to be present and never in the linea alba, but a little to the side of the middle of a line drawn from the anterior spine of the ilium to the umbilicus. Evacuation must be slow, to avoid collapse or intra-abdominal hemorrhage. If the flow be suddenly interrupted, a slight change of the position of the aspirating needle usually suffices to free the lumen from obstruction. To avoid injuring the bladder, it should be catheterized before the tapping.

While speaking of the *urinary bladder* there is seldom occasion for its *aspiration*, certainly not for diagnostic purposes, except when there is absolute closure of the urethra. In such cases the technic is simple. A medium sized aspirating needle, attached to a reliable syringe, is inserted vertically immediately above the symphysis pubis and into the bladder, without changing the direction of the needle. Injury to the peritoneum need not be feared, since the distended bladder has pushed the peritoneum out of the way.

Aspiration of the joints is best accomplished with a thick needle and aspirating syringe. It requires no special description, except that one must be familiar with the anatomy of such joints as the knee, hip, foot, elbow and wrist to determine the most practical site for approach.

Chemical Diagnosis of Surgical Conditions

It would be impossible to describe all known chemical methods for the diagnosis of surgical affections in a brief article, as this represents a specialty in itself; but every surgeon, and for that matter every general practitioner, should be in a position, especially in the absence of competent aid, to make his own tests in a number of

conditions, and these we will take up rather briefly.

Let us begin with the chemistry of the contents of the *stomach*.

Occasionally, when we examine vomited material, we have a good diagnostic clue in the macroscopic appearance. We suspect cancer of the stomach, of the ulcerative type, when the vomited material resembles coffee grounds. The presence of large quantities of blood speaks for the presence of a peptic ulcer rather than for carcinoma, because, in the latter, blood is present in small quantities only.

To demonstrate the presence of blood chemically we may use: 1. *Weber's Test*.—To several cubic centimeters of stomach contents, add one-third the quantity of glacial acetic acid and extract with about 10 cc. of ether. To the decanted ether extract, add a layer of a mixture of tincture of guaiac and old turpentine. A blue ring indicates the presence of blood. (Note: Instead of the old turpentine peroxide of hydrogen may be substituted.)

2. *Teichmann's Test*.—Rub on a slide a small quantity of the stomach contents with a little sodium chloride and add a few drops of glacial acetic acid. Heat carefully over a flame and add, several times, a drop of the acid while evaporation takes place. When evaporation has ceased put on a cover glass and place under the microscope. In the presence of blood, hemin, which appears as reddish-brown, rhombic crystals, will be easily identified.

If the vomited (or withdrawn) contents of the stomach be free from blood, we proceed to determine the presence of *free hydrochloric acid*.

The best plan is to allow the patient to take, on an empty stomach, 2 cups of black tea without cream or sugar and a slice of dry (not buttered!) toast and to withdraw the contents with the stomach tube, in the manner described in a previous issue, 45 minutes after ingestion. The contents are filtered through clean filter paper in a glass funnel.

We now dip a strip of paper saturated with congo red (known in the trade as congo paper) into the filtered stomach contents. If it turns blue we know that the filtrate contains hydrochloric acid. This is known as the *congo-reaction*.

But this reaction does not suffice, and in order to determine with certainty the presence of free hydrochloric acid, we resort to a simple test known as the *Guenzburg Test*.

(To be continued.)

Discussion of Surgical Problem No. 2

Recapitulation (See February issue, p. 129.) This problem, which was submitted by Dr. A. J. Annunziata of New York City, pertains to a butcher, aged 22, who began to complain of pain in the right lumbar region on June 10, 1926. He had had similar attacks before. The day after the last attack the pain extended to the other side and the patient was given a purgative, which did no good. When Dr. Annunziata saw him the following day he had malaise, anorexia, headache and weakness of the legs, in addition to the original symptoms.

Physical examination revealed only a slight elevation of temperature and the presence of suppurative tonsillitis and pharyngitis. There was tenderness to pressure over the right lumbar region.

During the evening the temperature rose to 103° and 105°F. He bled from the nose profusely during the night, but in spite of increased tenderness in the lumbar region and aggravation of the headache no mass could be demonstrated. While the patient stated that the pain extended to the scrotum, there was no abnormal desire to micturate. Urinary analysis, too, was negative but the pain increased the next day to an extent requiring narcotics. The temperature rose to 106° and there was general abdominal tympany. Dr. A. made the tentative diagnosis of perinephritic abscess.

A consultant thought, in addition, of a possible retrocecal appendiceal abscess. At the hospital some thought of typhoid fever, but the urinary analysis was virtually negative. Leucocytosis (22,500 with 90% polymorphonuclears).

Except for a nasal ulcer, which was cauterized, there was no change during the five days following admission to the hospital, and only after the development of a mass in the right lower quadrant was operation decided on, a week after his arrival at the hospital.

Incision revealed a sac containing a large quantity of white odorless pus. The appendix was not sought. Postoperative reaction reached a temperature of 107°, but this dropped to 99° the next day, and from then on showed a slight evening fever. The pus showed staphylococcus albus.

Two weeks after operation there was burning on urination and some albumin and pus were found in the urine. Three weeks after, the patient had epigastric pain and biliary vomiting. A mass in the upper right quadrant and the symptoms dictated

another laparotomy, which revealed only an inflamed gall-bladder. Cholecystostomy was performed. Reaction was severe but less marked. A week later the patient appeared to be dying, but gradually the symptoms abated and the sensorium became free. In another week a gluteal abscess was opened and from then on recovery was slow but good. The patient was so emaciated that at no time could a pyelogram have been made.

All blood cultures were negative and one from the gall-bladder showed also staphylococcus albus.

The patient lost sixty pounds during his illness but regained forty after discharge from the hospital.

The requirement called for a critical discussion of the diagnosis and a general criticism of the treatment.

**Discussion by Brig. Gen. Geo. Acheson
St. Martins, N. B., Canada**

From the history and findings in this case, I should say that we have a fairly typical picture of pyemia. The multiple, successive abscesses and the high and irregular temperature exacerbations indicate a profound sepsis, the cause of which the pathologic laboratory shows to have been *Staphylococcus albus*. Luckily for this patient, it was not a *Streptococcus* infection, or Dr. Annunziata would not have been able to report "his recovery is now complete."

The point of entrance, no doubt, was the throat—tonsils and pharynx, we are told, being acutely inflamed and suppurating. The connection between the throat and these various abscesses is by way of the blood stream and along the lymphatics, infective emboli being carried and lodged in possibly widely separated situations.

No information is given as to treatment, except incision and drainage of undoubted abscesses, the electro-cauterization of a nasal ulcer, and the administration of needed narcotics, with all of which I am in complete accord. What more could have been done? A stock staphylococcus mixed bacterin, or an autogenous vaccine might have been administered. Saturation with calcium sulphide might have been tried. Intravenous injections of metaphen or mercurochrome have their advocates. I cannot speak from experience of the latter, but I do know that both these substances are excellent germicides, and I would have used either of them on the pharynx and tonsils. So much for the specific treatment;

any additional medication would be symptomatic.

Both doctor and patient are to be congratulated on the "happy issue out of all their afflictions."

**Discussion by Dr. Robert S. Gregg,
Chicago, Ill.**

This problem is very interesting from the standpoint of onset, extreme severity and successful restoration to health of the patient. The fact that the patient had had similar attacks before may be significant in the light of further development, and as regards the epistaxis that is probably fully explained by the presence of a nasal ulcer.

We are left to conjecture as regards the possible etiologic relation of the suppurative tonsillitis to the general trouble because we are not given the degree of severity, nor is anything said as to whether or not there was a uni- or bilateral peritonsillar abscess.

In studying the location of the pain we find that its radiation to the scrotum is at least suggestive of irritation along the ilio-hypogastric and ilio-inguinal nerves, and Dr. Annunziata's diagnosis of perinephritic abscess was reasonable, even in view of the negative urinary analysis, since this never shows anything unless the abscess is secondary to kidney disease proper.

The leucocyte count of 22,500, coupled with the fact that there was an increase of the percentage of neutrophils, suggests a rather severe pyogenic infection, to which the body was reacting. In the absence of chills, sweating, and with negative blood culture findings, septicemia and pyemia may be ruled out from the diagnosis, though we must admit the presence of pus somewhere, and we explain the temperature curve by septic absorption.

The finding of staphylococcus albus in the pus taken from the right lower abdominal quadrant, and later in the opened gall-bladder, suggests a similar if not common origin. Bowel communication again can be ruled out by the absence of foul odor in the pus and by the absence of coli bacilli.

From the history as given and from the observations during the progress one is scarcely in a position to dogmatize on the situation. I am, nevertheless, inclined to the belief that the case may have been one of empyema of the gall-bladder, with a subsequent rupture and extravasation of the pus distal to its origin, though I am mindful of the fact that it is not easy to diagnose

such a condition unless the gall-bladder is distended so that it can be palpated. I recognize also that a ruptured infected gall-bladder presents a grave condition, with resultant general peritonitis and a high mortality.

Considering all the facts, such as high temperature, abdominal tympany and tenderness, leucocytosis, etc., it was but natural to suppose that pus was confined somewhere and, in the absence of definite symptoms, that this was in the abdomen. Though I am inclined to feel that the abdomen should have been explored earlier in the case, I realize that the abdomen has great surprises in store for us, compelling one to go slowly.

The gluteal abscess is somewhat misleading to our calculations, because it may have resulted from pressure necrosis, or lowered resistance as a result of long and exhausting disease.

**Discussion by Dr. M. O. Robertson,
Bedford, Ind.**

This problem is particularly interesting to me because I have seen similar cases in the Orient, but never in America and, accordingly, I am exceedingly anxious to read the discussion.

I confess that my experience with perinephritic abscess has been rather limited, but from that experience I am inclined to rule out such a diagnosis. I base this on the negative urinary findings. Certainly I cannot believe it to have been a primary kidney infection, nor do I believe that the origin was in the appendix, though this little viscus has a habit of playing us nasty tricks, and likewise I cannot seek the origin in the gall-bladder. I am impressed with the idea of a general systemic infection, possibly originating in the nasal ulcer, with three local manifestations, the appendix, the gall-bladder and the buttocks. It does seem that the blood culture should have been positive, but very likely it was pyemic in character.

This is my sole explanation and I shall look forward with keen interest to any other that may be submitted.

Editorial Comment

First, I desire to express my sincere thanks to Dr. Annunziata for the contribution of this very valuable problem. His comment was that young graduates should get away from the false notion that their diploma is equivalent to great wisdom and experience, and that real and earnest study

begins from the day one assumes the responsibilities of actual practice. He regrets that his case presented something tangible only when the gluteal abscess was discovered, but recognizes that, in spite of the absence of positive blood findings, there was a general toxicosis.

I cannot boast of many observations of perinephritic abscess, but I have seen enough and have studied the literature, both American and foreign, to have something like an experience which can suggest a diagnosis.

At the time Dr. Annunziata saw his patient and made the diagnosis of perinephritic abscess he performed a master stroke. And what is more, he is right and his consultant, though not actually disagreeing, was wrong. There is nothing in the history to indicate appendiceal or biliary origin. No appendiceal infection, even a retrocecal one, begins that way and if there is any chance for a mistake it will be in the direction of peptic ulcer or suppurative cholecystitis. I said on a previous occasion that in the diagnosis of biliary disease we often need spend but a few minutes to find—nothing; but a half hour of a properly conducted anamnesis will make a diagnosis almost mathematically certain.

We have neither situation before us. There was a perinephritic abscess, doubtless hematogenic in character, since there was no proof of kidney involvement nor a history of trauma to the region of the kidney, which descended, pushing the peritoneum down and to the side. That was why the operator did not see the appendix. Luckily for the patient, the surgeon was not over zealous and did not try to locate the appendix, else he would have torn through the peritoneum and the probable result would have been a premature termination of the patient's life.

The whole history of the progress of the disease is absolutely clear to me as a toxic state due to infection and absorption of the staphylococcal toxins, because the proportion

of temperature to pulse speaks for it. Had there been a streptococcal infection the clinical picture would have been different—low temperature, rapid pulse, Hippocratic facies and—death!

As for the emaciation, I have seen a large number of toxic patients go down to skeletons, and come out with the smile of another lien on life, almost identically as in this case.

I do not know where the trouble originated. Possibly in the tonsils, possibly in the nose, and, perchance, elsewhere—that does not matter now. Dr. Annunziata has, no doubt, warned his patient to come back and let him look for the focus, to prevent recurrence.

As for the treatment, we have an old law in surgery: *ubi pus, ibi evacua*. This the surgeon has done. While operating he might have introduced an aspirating syringe in the lumbar region, and he probably would have had to follow that up with a rapid cut along the needle.

I welcome Dr. Gregg as an earnest thinker, who, after we became personally acquainted, promised me to become a regular collaborator. I salute General Acheson, as always a deep scholar, and I greet our old friend Dr. Robertson, who is giving up time from a busy practice to help us out and to enjoy the common fruits of our modest labors, and I thank the other gentlemen who sent in brief discussions—too brief, however, for publication.

Problem No. 4

A little girl, aged about 4, with only a history of measles when about 3 years old, of good constitutional development and in good health, with a good familial history, had the misfortune to swallow lye, which, naturally, resulted in a stricture of the esophagus.

You see the patient two or three hours after the accident. Requirement. Immediate therapy. Therapy the next day. Therapy the third day. Prognosis.

Clinical Notes and Practical Suggestions

Meddlesome Midwifery

A LADY after her confinement remarked that giving birth to babies was no joke. We might say, on the other hand, that it is no surgical operation, yet it appears that it is rapidly becoming one. Patients about to be confined are, in the main, hospitalized, and a great many physicians refuse to accept an obstetric case unless she agrees to go to some hospital.

Does hospitalization of obstetric cases lower the mortality? A bulletin from the United States Department of Labor states that the maternal mortality rates in the United States are today among the highest in the civilized world, and but a slight decrease in these rates has occurred since the beginning of the present century. Specifically, this country has the fourth or fifth highest maternal mortality among twenty-two civilized countries.

Dr. H. Bailey, of New York, states, "There is a wave of meddlesome midwifery sweeping over the country". The use of forceps and the operations of episiotomy and cesarean section are on the increase.

Some years ago I met an exceptionally well-formed woman with a pelvis about fourteen inches wide, who had had a cesarean operation, and she said that the operation was performed because "the uterus did not dilate larger than a twenty-five cent piece". Another informed me that the operation was performed on account of eclamptic convulsions. (With a mortality of 36 percent!) In another case the lady concerned gave birth to her baby in bed in the ward while waiting to be removed to the operating room.

In one of the hospitals in Buffalo, nine percent of all the patients were delivered by cesarean section. In a certain Philadelphia hospital, one cesarean section is performed in every six pregnancies; while in Toronto's largest hospital one cesarean occurs in each seven hundred deliveries.

Less interference during labor and more instruction prior to labor are indicated. I have in mind the case of a young physician

whose only attention to his patient during the carrying period was to take her blood pressure. This was above normal and he predicted dire results. Labor was, however, precipitate, occurring before he could be present, and convalescence was normal.

The classical premonitory symptoms of eclampsia are forgotten in the presence of the ubiquitous sphygmomanometer. The monthly examination and instructions are repudiated in favor of the same instrument. Polak, of Brooklyn, reports only one case of eclampsia in seven thousand labors, and he has reduced still-births from 80 per thousand, without pre-natal care, to 19 per thousand with this care. He states, "Sixty-one percent of our gynecologic practice is the direct result of poor obstetrics, and thousands of children are sacrificed or crippled by ill-advised and faulty obstetric operations."

Some still cling tenaciously to the antiquated idea that the placenta must be delivered within an hour after the birth of the child, and endanger the life of the mother by its manual removal. As a matter of fact the placenta may be left with impunity for seven or eight hours and then easily removed by Crede's method.

It is still taken as a matter of course that a woman's abdomen will necessarily be disfigured with lineae albicantes when, as a matter of fact, there is no necessity for the slightest blemish.

Prenatal care is neglected and simplified obstetrics is on the wane.

R. STEWART MACARTHUR,

Los Angeles, Cal.

[More and more thinking obstetricians are coming to realize the soundness of these suggestions, and we believe that the crest of the wave of meddlesome midwifery is past.

We do not wholly agree with Dr. MacArthur as to the uselessness of hospital care during confinement. We believe that the hospital is the proper place for a woman at

this time, but you must *pick your hospital* with care.

The sphygmomanometer should be used frequently on every pregnant woman; but the physician who depends upon it *alone* is as foolish and incompetent as the raan who depends wholly upon the Wassermann test to make a diagnosis of syphilis.

More knowledge of anatomy and physiology and the mechanics of parturition, more patience, more common sense and more sound judgment are what we need.—Ed.]

UTERINE BLEEDING*

Bleeding from the uterus falls into three classes:

- 1.—Cases associated with pregnancy (obstetric group).
- 2.—Cases independent of pregnancy.
- 3.—Cases due to associated causes.

In every case of this kind we must carefully consider what will be the consequences to the patient from delay in recognition and relief.

Under the first group we find uterine inertia, deep cervical lacerations, placenta previa, abortion, hydatid mole, ectopic pregnancy, rupture of the uterus, etc. We must diagnose carefully, as some of these conditions are extremely urgent and others less so. Persistent bleeding may result in grave anemia.

Under the second heading are placed the various endocrinopathies, injuries of all kinds (mechanical, chemical, etc.), and neoplasms.

In the third class are placed the hemorrhages accompanying the acute infectious diseases, toxic states and nervous conditions. In these two latter classes, bleeding is not an important symptom unless it results from neoplasms.

One-third of all cases of cancer develop in the uterus, and from 15,000 to 20,000 women die each year from this cause—52 percent between the ages of 35 and 50 years, though it has been known to occur as early as 19 years. This is a most important problem, as the disease may spread, within 6 months of its first appearance, to the parametrium, after which no cure is possible.

Malignancy varies greatly, and so the statistics vary. We must study all the different types of neoplasms as to treatment and results obtained if we are to arrive at valid conclusions.

*Abstract of a paper read by Dr. E. H. Richardson, of Baltimore, Md., before the Southern Medical Association at Atlanta, Ga., Nov. 16, 1926.

Some of the textbooks give, "Bleeding, pain and a foul, watery discharge" as "early symptoms" of cancer of the uterus. This is an error. These are *late* symptoms, and all patients in whom they have developed *die*. Just one trivial, unimportant showing of blood—a mere discoloration of the discharge—unless otherwise readily explainable, is an early symptom of cancer.

In cases of fibroids, polyps and other benign conditions we may wait, but we must study *every* case of uterine bleeding *fully*, remembering that what appear to be benign tumors may be associated with cancer.

Every case of uterine bleeding should be considered a case of cancer until it is *proved* to be something else.

G. B. L.

FINE AND IMPRISONMENT

How would you feel if you were sentenced to prison for 10 years—taken from useful and enjoyable life—and fined \$25,000 in cash?

That is how many of us are being punished for breaking the laws of health. Ten years taken away from life and about \$25,000 in money gone through lowered efficiency and loss of working time!

The fellow who breaks the laws of health may get away with it for a while, but sooner or later Nature's justice gets him.

HERMAN N. BUNDESEN,

Chicago, Ill.

A SUBSTITUTE FOR PILLS

"Stop taking headache medicine, indigestion tablets, constipation pills, and tonics", said a famous doctor to a run-down patient. It matters not whether the patient be man or woman for the advice that follows will serve for either. "Walk more—take some physical exercise every day, be outdoors and report back to me in two months".

Everyone may not be fortunate enough to belong to a golf club and get in an afternoon or more of exercise weekly on the links. We may not all have access to a gymnasium, to a tennis court or swimming pool. Nearly every one has, however, his two good legs and enough money to buy a sensible pair of shoes and can walk at least a mile or two daily. Bright days lure one out-of-doors and there is no tonic in the world that can keep one more fit than a good brisk walk. But it must be *brisk* to do any good.

If the "tired business man" can supplement this with a few setting-up exercises in the morning and at night before retiring and with a weekly visit to a gymnasium, there is no reason why any such desk-worker should become flabby, or have that middle-aged feeling. It is all very well to modify the diet and eat more wisely with the approach of middle life but a splendid diet regimen will be of no avail if the muscles are allowed to become stiff and the body is not kept well oiled with exercise.

Neck muscles must be strong to hold the head erect and high; abdominal muscles must keep the organs from slumping or bulging. Arm, leg and trunk muscles must be reliable and enable one to work efficiently with vigor and enjoyment.

With this muscular development (not overdevelopment unless you are to be a circus performer!) will come better circulation of blood, better respiration and better functioning of skin, intestines and kidneys.

Prevention of sickness is our modern medicine. Nowadays people go to the doctor to keep from getting sick. One of the best medicines to prevent sickness is exercise.

ELIZABETH COLE,

New York City.

THE DRY SIDE

I judge that the writer of the article, "Medical Practice Directed by Congress", in the February CLINICAL MEDICINE AND SURGERY is not an ardent supporter of the Volstead law, for which I am sorry, as I believe it has done great good and helped us to collect many bills.

I have been in active practice since 1901 and have never seen a case where the use of whisky or brandy was absolutely necessary. There are always other things that will do the work just as well.

I do not recall having seen a prohibition article in the journal, and I wonder why you always take the wet side. I am not a crank and am wholly honest in my convictions that the more thoroughly the Volstead law is enforced, the better.

O. R. PRETTYMAN,

Mason, Iowa.

[If Dr. Prettyman had read the editorial in question more closely and carefully he would have found no cause to condemn it, as we took particular pains to express no opinion either for or against alcohol, as a medicine or as a beverage, but confined our remarks to a discussion of the great *princi-*

ple, whether or not Congress has a right to tell physicians what they shall or shall not give their patients.

The doctor has never seen a prohibition article in this journal—nor a "wet" article—and we hope he never will. We firmly believe that the pages of a medical publication are *not* the proper place for threshing out controversial questions of religion or politics—and, to some people, the Volstead law seems to be both. We have therefore refrained from all comments upon that law, except as it directly limits the strictly *professional* activities of physicians. The only reason we are printing this article is because we have felt that others might have misunderstood us, and this gives us an opportunity to define our position.

There are many physicians who agree with Dr. Prettyman that alcohol is entirely unnecessary, as a medicine. There are many others, of equal experience and wisdom, who heartily disagree. We are taking sides with *neither*, as each man is entitled to his own professional opinion in matters of this sort.

If a doctor desires to use whisky in his practice, there is little doubt that the quantity allowed him by the law is more than sufficient for his needs. We have never suggested that he be allowed to prescribe *more*, but simply that it is a disastrous impertinence for Congress to dictate to him *at all*, in this or any other purely professional matter. It is, let us repeat, the *principle*, and that *alone*, which we were discussing.

Perhaps—even probably—a certain number of doctors abuse their privileges under the law. That should be a matter to be settled within the profession itself. Medical organizations have ways for dealing with those of their members who are indulging in improper and unethical practices.

This article and the comments upon it do not open the prohibition question for discussion in these columns, and are admitted solely to make our position clear to those who may have misunderstood the purpose of the editorial in question—ED.]

FEVER

Back in 1900 to 1907, the late W. E. Quine found it necessary to lecture at least once a year on "Fever, a symptom; fever, a disease." One point he never failed to bring out: "Remember, fever will kill!"

No truer statement was ever made, but how little attention has been paid to it! Fever has been considered a self-limited symptom; a necessary evil. A candid report

of some disease, incidentally carrying a fever of 103° to 105°F., may be found on the hospital reports daily.

Fever will kill, but how high must it rise before it kills? A few cases have been known to survive a temperature of 110°F.

If fever will kill some, it must at least cripple others. What is the first part to suffer? The delicate, highly-organized nervous system, as is so well illustrated in the sick baby. A fever, rising to 103° to 105° causes muscular twitching and, if the warning is not heeded, a convulsion. The nervous system has been crippled. Many cases of mental abnormality date back to a neglected fever.

What is the danger zone for fever? A temperature of 105° is dangerous; 103° is not always safe; but *never* are you safe above that point. It makes no difference whether it be typhoid, pneumonia or measles, the same thing is true, and in place of spending your time watching a weak heart become weaker, *treat the fever*. Remedy the cause, so far as possible, but keep the fever down, even if it takes the coal-tar derivatives to do it. Hydrotherapy is all that is usually needed.

If you hold the fever in check you maintain a quiet nervous system, and sleep, that gives nature a chance to repair the damage, comes to your aid, so that the chances of crippling of the organism are greatly diminished.

Russell, Ia.

R. A. HILLS,

[There is no doubt that a high fever, long sustained, may cause serious damage to the human body. There is, however, a growing conviction that, within certain limits, fever is a *conservative* process and a valuable, if not a necessary, factor in the cure of certain diseases. The treatment of paresis by malarial infection and of acute and chronic infections by parenteral injections of foreign proteins is believed, by many, to depend for its success largely upon the high temperatures which result from the use of these measures.

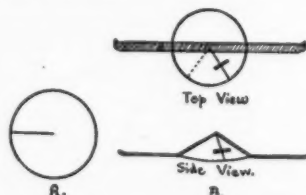
Where fever tends to menace the welfare of the patient, hydrotherapy, properly applied, will almost always control it. If not, it is doubtful whether the synthetic antipyretics will be more successful, though acinitine may generally be depended upon in such cases.

The nature and mechanism of fever are far from being fully understood, and we are

safer if we refrain from dogmatizing and treat the *patient*, rather than a disease or a symptom.—Ed.]

HOME-MADE VACCINATION SHIELD

At the Philadelphia General Hospital they use a little home-made vaccination shield which is simple, sanitary, costs nearly nothing and does the business. The drawing shows how it is made.



Cut a disc of moderately stiff paper, 1½ inches in diameter, with a radial slit extending to the center (A); slip one of the cut edges over the other about 60 degrees and fasten it with a tiny bit of adhesive, making a little paper cone (B); secure this over the scarified area with a narrow strip of adhesive, thus protecting the part from the clothing until it is thoroughly dry, when the shield can be removed.

GEO. B. LAKE,

Chicago, Ill.

INCUMBENCY?

Out in Dayton, Ohio (where, during the flood, men proved they were men by rushing to aid without thought of pay), a certain coroner publishes charges that a little girl died of measles because ten doctors refused medical aid on the grounds that the mother couldn't pay!

"It is incumbent upon a physician to render relief when it is urgent, regardless of compensation," says this bold fellow, evidently with a weather eye on a bigger political job for "the friend of the people." It is just as incumbent as it is upon the clothier to furnish a nice warm overcoat for the man who would otherwise freeze to death and upon the milk company to furnish free milk to the kiddies who otherwise might pass on from rickets.

Without bothering to refer to a Medical Directory or Charity List, we'll venture to say that there are dozens of places in Dayton where the sick can get free medical advice and service and where the poor can

get warm overcoats and where the starving can get milk and food. And just why everybody seems to pick upon the doctor and demand that he, in his own practice, give away time free, whilst at the same time admitting that a clothier who gave away overcoats would soon be bankrupt, we do not know.—*Medical Quarterly, R. & C.*

EPSOM SALTS

If I were to be placed on an uninhabited island and could take but one drug with me, that drug would be Epsom salts. There is no other drug that has such a wide range of usefulness. If the virtues of Epsom salts were generally known, far more of it would be used; and if everything was sold on the strength of its usefulness and merit, Epsom salts would bring about \$10.00 a pound, compared to the price of other drugs.

When I was a boy, I had an attack of what was then called cholera morbus and was seriously ill, with severe cramps and diarrhea. An old man who had been a captain in the English army said, "If you will take a tablespoonful of Epsom salts in a glass of hot water you will be well in an hour or two; if not, repeat the dose." I took the salts and I was over my trouble in a short time. During the years I have been practicing medicine I have used Epsom salts frequently for that trouble and it has seldom, if ever, failed. It is good for any kind of diarrhea.

I once heard a doctor telling about the difficulty he had in getting rid of a certain patient who had become a nuisance. Finally he put a tablespoonful of Epsom salts in a gallon of water and told him to take ten drops before each meal in a little hot water, and to come back when the medicine was gone. The man did not, however, wait until the medicine was gone, but came back in about a month or two to thank the doctor for the wonderful cure he had made, saying that he had started to improve shortly after he began taking the medicine and that he was in better health than he had been in many years. It was strange that the doctor did not attribute the cure in any way to the small dose of Epsom salts he had given, but that occurrence and what the old army officer had told me set me to thinking and to doing some experimenting with the drug.

There is no one drug or combination of drugs I have ever used that will give as quick results in cases of indigestion or ptomaine poisoning as a teaspoonful of Epsom

salts and a teaspoonful of sugar in half a glass of hot water. In some cases it may be necessary to repeat it in a half hour or so, but usually one dose will do the work. Epsom salts alone will help but it will not do it so well nor so quickly as when combined with the sugar. I have not had to give a dose of morphine in a single case of acute indigestion or ptomaine poisoning since I have been giving this mixture, and in most cases it will stop the pain quicker than morphine ever would.

I have had some ampules of Epsom salts and sugar put up for hypodermic and intravenous injections. So far as I know, no experiment has ever been made with this combination for subcutaneous or intravenous injections, and I intend to try it. I have been giving sugar and Epsom salts together, internally, for some time, for all sorts of troubles, and find it more or less of an anodyne both for the intestinal tract and for pain in other parts of the body. It acts well in neuritis.

In cases of infection—in fact any swelling, whether there are abrasions or not—where it is possible, I have a running stream of a solution, one pound of Epsom salts in two quarts of hot water, pass over the parts, either by pouring it or allowing it to run through a tube, as hot as it can be borne. Where this is impossible, I use the hot pack with the same solution, and I have never had a case of infection that I could not control with it.

Epsom salts in a solution of two tablespoonfuls to a pint of hot water, applied with absorbent cotton, makes an excellent eye wash for any kind of eye infection or inflammation. I first allow some of the solution to drop into the eye and then apply a compress, changing it every few minutes for an hour or two at a time, several times a day.

There are hundreds of cases where it can be applied with benefit, such as: styes, paronychia, boils, abscesses, or any inflammation or swelling.

A teaspoonful of Epsom salts and one of sugar to a glass of hot water makes an excellent gargle in any variety of sore throat or mouth.

Half a teacupful of Epsom salts in two quarts of hot water makes one of the finest vaginal douches a woman can use, and it will reduce an inflammation of the pelvis in a short time, if used hot and often and allowed to flow slowly. A teaspoonful or two of a paste made of Epsom salts and

glycerin, introduced into the vagina and held in by a tampon, will reduce any inflammation within the pelvis, especially of the uterus, tubes or ovaries, quicker than any other application, and it relieves the pain as well.

A solution of half a cup of Epsom salts to two quarts of warm water makes an excellent enema to relieve gas and fecal stasis in the lower bowel.

In cases of snake bites, insect bites, and bee stings, it usually gives almost immediate relief, if applied hot and strong, either with water or glycerin.

Ten grains of Epsom salts in half a glass of hot water, three times a day, and a pound of Epsom salts in the bath every other day is one of the best remedies I know for acidosis.

Recent reports show that a great deal of research work has been done and is still being done with this drug, but so far little is known of its actual value as a remedy.

J. BRYON SLOANE,

Los Angeles, Cal.

FEEES FROM MEDICAL PATIENTS

Almost every medical man, and particularly those of us who are specialists, are called upon at various times to render professional service to other doctors. True to the traditions of our profession we neither expect nor ask a fee for such service yet there are many who, in their gratitude, would willingly pay one if such were the custom. Many others would feel less as if they were imposing upon a fellow physician's good nature if they were permitted to pay a fee.

Of course, the ethics of our profession preclude charging for professional courtesy but it has occurred to me that the desire to show appreciation and gratitude might be satisfied and a very worthy cause aided by the following procedure.

Let the consultant, surgeon or specialist say to his patient, "Doctor, if you were a layman my fee would be so much. As a medical brother I neither ask nor expect a fee but I want you to write a check for half that amount and make it payable to the Physicians' Home. I shall forward it to them with your compliments". These checks should then be sent to Dr. Robert T. Morris, Physicians' Home, Times Square Building, New York, N. Y.

Such a plan would furnish a ready avenue for the expression of the gratitude that

every patient feels toward his medical friend in need.

J. F. MONTAGUE,

New York City,

BABY'S DAILY TIME CARD

Fifth and Sixth Months

At the age of five months, the baby should be on a four-hour feeding schedule and he should get cooked cereal and vegetable juice or soup, besides milk and orange juice. Here is a good plan for the baby's day at this age:

- 6:00 a.m. Breast feeding.
 Leave alone in crib to sleep or play.
 9:15 Plain cod-liver oil, then orange juice or tomato juice.
 9:30 Bath. Before bath let baby kick and play freely on a bed a few minutes without clothes.
 10:00 Cooked cereal, then breast feeding.
 10:20 Out of doors till feeding time. Sun bath and long nap in sun. Drink of water after nap.
 2:00 p.m. Vegetable soup, then breast feeding.
 2:20 Out of doors as long as season permits, in sun except on very hot days. Short nap. Drink of water after nap. Play.
 5:15 Undress for night; before putting on baby's night clothes let him kick and play on bed a few minutes. Play must not be exciting nor rough.
 5:45 Plain cod-liver oil, then orange juice or tomato juice.
 6:00 Cooked cereal, then breast feeding.
 6:20 Bed, lights out, windows open.
 10:00 Breast feeding.

Training the Baby of Five and Six Months

Feed the baby regularly by the clock, and let him sleep after each feeding. Give new foods in small amounts at first, and the baby will learn to take more of them. He may refuse a new food or spit it out because he has not yet learned how to swallow solids. Do not show worry, but keep on giving him the new food from day to day, and he will learn to take it.

Teach the baby to hold the bottle while drinking water.

Begin training for regular bowel movement.

Put toys in the baby's crib—simple washable ones that will not break. Give exercise morning and evening.

Keep on giving sun baths. Let the baby sleep in the sun all morning. On the hottest days do not put him in the sun between 11 a.m. and 3 p.m.

Diet

If the physician advises it, one feeding a day of cow's milk formula may be given instead of a breast feeding.

Give a whole-wheat breakfast food, or farina, or oatmeal, well cooked, twice a day (before the 10 a.m. and the 6 p.m. breast feedings). Cook it 1 to 2 hours. At first give $\frac{1}{2}$ to 1 tablespoonful of the cereal at a time, cooked thin. Give more and more until the baby gets 3 tablespoonfuls twice a day. Make the cereal thicker as the baby gets used to it.

Before the 2 p.m. breast feeding give 1 to 3 ounces of vegetable soup made as follows: To 1 pint of meat soup from which, the fat has been removed add 1 cup of chopped raw vegetables—spinach, carrots, kale, peas, or beans. Cook slowly $\frac{1}{2}$ to $\frac{3}{4}$ hour and strain.

The yolk of a soft-boiled or coddled egg may be given to babies of this age. Give a little egg yolk at first (at the 2 p.m. feeding), then more until the baby gets a whole yolk daily.

Give $1\frac{1}{2}$ to 2 tablespoonfuls of plain cod-liver oil twice a day.

Give 1 tablespoonful of orange juice or 2 tablespoonfuls of tomato juice twice a day.

Offer the baby 1 to 3 ounces of boiled water, not sweetened, once or twice a day.

CHILDREN'S BUREAU,

U. S. Dept. of Labor.

THE PHARMACOPEIA OF THE UNITED STATES

About the middle of the last century, due to the uncertainty of the galenic medicines, the medical profession was becoming decidedly nihilistic; it was at this time that the chemist became a strong factor in both pharmacy and therapeutics. The separation and physiologic testing of the alkaloidal content of botanical drugs became active in Latin Europe and it was then that Doctor Adolphe Burggraeve, of Ghent, Belgium, created a complete revolution in therapeutics, and was rewarded, socially and financially, by France, Spain, Portugal, Italy and his own government, all of which adopted his ideas for their armies. Doctor

Burggraeve made the mistake of antagonizing the regular school and creating a new one, dosimetry, which was as arbitrary as it was unnecessary.

Pharmacy in the United States has not kept step with the chemist; tinctures have become obsolete and fluid-extracts are following the same road. The pharmacist is no longer a scientist, but has become a business man, purchasing his supplies from the large laboratories who employ chemists equal to every new chemical problem that arises, while the poor apothecary is lost at sea without his radio to call for help.

With this introduction, I purpose to review briefly the work of the pharmacopeia makers since 1900 to the present time and show, if possible, where they have committed errors, of either commission or omission, in what should be a purely scientific picture of pharmacy and chemistry today.

We do not look for either therapeutic or physiologic tests for medicines in a pharmacopeia, but we are interested in the "average dosage". This is given for aconitine, in all of the revisions as 1/400 grain. This dosage is not based upon symptomatology, therapeutics nor the physiology of the drug and it is equally too large as it is arbitrary. Doctor Burggraeve fixed his dosage to both symptom and patient alike at 1/134 grain of the amorphous aconitine; while in the United States we use 1/800 grain of the crystallized active principle, which produces the same results. This dose is being given daily to children of 4 months and to adults, without reference to age and with perfect therapeutic effects. I am pleased to note that tincture of aconite has been dropped in the tenth revision. It has been a most uncertain preparation, as it has been practically impossible to obtain two prescriptions alike from different sources.

For the first time in the history of medicine, as I have studied it, patented medicines have been made official by the admission of several German patented articles in the revision of 1900; while there can be no objection to the chemicals themselves, either analytical or synthetic, from an ethical standpoint, it seems to me to be a bad precedent.

I am strongly of the opinion that an effort should be made, by both druggists and physicians, to create a sentiment in Congress, looking to a revision of our patent laws which should deny to foreigners patents on medicines not patentable in their own countries; or to our own citizens, except

where the article is to be sold to the public by newspaper or other methods of advertising, and such patent, when issued, should require the complete formula to be shown on the label, as is required by European countries. I have tried to accomplish this work since 1876 with no visible effect. And yet, scientific medicine should be free.

We have no criticism to offer as to the synthetic chemicals. Their place is fixed by physiologic and experimental tests; later by their therapeutics. They live or pass out of existence by their value or lack of it in the hands of the practitioner, who is the last authority for their existence.

Botanic drugs have been used, with more or less success, for more than two-thousand years, but it is only within the last century that their compound nature has been established by the chemist and their true value given to medicine. This is of the greatest interest to both pharmacist and physician, who now know that they are working with tools that will always do the same thing under the same conditions and this is due to the wonderful work of the chemist, who, in the early days, spent his time in hunting for the two chimeras: the transmutation of the baser metals into gold and the elixir of life. As a matter of fact, we have some of these old-timers with us yet, if we are to believe the newspaper stories.

The use of atropine is so well established that it is unnecessary to discuss it at length. We must, however, make objection to the "average dose", which is much too large, and this objection applies to all of the botanical alkaloids listed in all the revisions of the pharmacopeia. The dose established by Doctor Burggraave is both scientifically and therapeutically accurate and should be used in all cases.

As cocaine and other habit-forming drugs, together with the narcotics, are now under government control, their use is limited by official license.

Hyoscine and hyoscyamine: The discussion as to the identity of these alkaloids with scopolamine still goes on, without reference to their physiologic or therapeutic action. This will probably continue until chemists agree upon the arrangement and quantities of the chemical atoms in each. The French chemist and the eighth revision agree upon the similarity between hyoscine and scopolamine, while the German chemist, Hesse, disagrees with both. While the argument continues, therapeutics marches splendidly on without notice of these disputes.

I note that hyoscine has been omitted in the ninth revision, while this is not mentioned in the list of articles deleted. It is possible that this error was unintentional, as hyoscine is the sheet anchor of the alienist.

It seems to me that the article veratrine should be revised. The amorphous alkaloid is not used in the United States and the crystallized salt is pure veratrine. The fact that the eighth revision describes the amorphous salt accounts for its acceptance by the Chicago College of Pharmacy, as Prof. Hallberg (since deceased) was a member of the convention and a determined opponent of veratrine crystals.

In 1888 and 1889 the writer and his friends made a successful effort to acquaint the physicians of the United States with the idea of alkaloidal or active-principle therapeutics, and that this revolution had its effect is shown by the eighth revision of the pharmacopeia. That revision dropped from its pages: 44 crude drugs, 29 chemicals, 26 solid extracts, 11 tinctures and 38 fluid-extracts. As a matter of fact, most of the chemicals have been replaced by others more modern, while the crude drugs and galenicals remain dead and have not been added to in subsequent revisions, so that at present the total deletions (including the tenth revision) are: crude drugs 158, chemicals 101, tinctures 35, solid extracts 45 and fluid-extracts 63.

In the articles included, or added, in the various revisions there are 19 alkaloids from botanic drugs, while 9 more should be added as covering a complete list of active principles with an established record behind them. These nine are: Arbutin, boldine, gicutine, convallaramine, digitalin, ergotin, gelseminine, quassin, scillitin.

It speaks well for the care exercised that so few errors are noted in the voluminous work done in the three revisions examined.

W. T. THACKERAY,

Fowlerton, Texas.

USES OF ULTRAVIOLET RAYS*

In ivy poisoning (2 cases), bedsores (2 cases), slowly healing fractures and whooping cough, ultraviolet irradiations have given excellent results.

In treating ulcers with ultraviolet, use caution as the new cells may be destroyed by over-raying. Do not increase the dose

*Abstract of discussion by Dr. J. C. Elsom before the Iowa Radiological and Physiotherapy Society, Nov. 11, 1926.

nor shorten the distance—2 minutes at 32 inches.

Women should be irradiated as a routine procedure during pregnancy and lactation, beginning at the third month and giving the treatments from 1 to 3 times a week. This treatment is also of value in celiac disease and in pyelitis occurring in infants. In the vomiting of pregnancy a strong erythema should be induced over the area of the stomach, together with milder general irradiation.

The ultraviolet rays increase the red blood cells and also the total body content of calcium. In this connection it should be remembered that the *blood* calcium does not show the general body condition, as the cells may be depleted to furnish the quantity in the blood: Also, that in rickets there is a deficiency of phosphorous, as well as of lime.

The general tonic property of these rays should be utilized upon surgical patients prior to operation, particularly prostatectomy; in chronic bronchitis and severe coughs; and, in the general asthenia often seen in women at the menopause, especially when profuse uterine hemorrhages occur.

Do not use ultraviolet in *active* cases of tuberculosis nor where there are abscesses of any description until these have been drained. In order to use this agency with safety and success, one must thoroughly know the indications, contraindications and dosage.

G. B. L.

SPECIFICS

The exact study of the actions of drugs did not begin until the middle of the eighteenth century, since which time the day of "simples" has nearly passed, and the science of pharmacology has arisen. Morphine, extracted from opium in 1817, was the first of the active principles of drugs to be made known, and now active principles have taken the place of former crude mixtures.

Knowledge of the action of drugs on living tissues is being placed upon an exact basis, and official standards of purity now exist in most civilized countries. The modern pharmacologist proceeds by refined methods to examine the action of known quantities of drugs on the functions of the individual organs and tissues of the animal body, and experiments performed outside the living tissues indicate the influence of

the drug on the chemical reactions of various organic and inorganic substances. Thus there is accumulated a mass of data which aids in understanding the action of the drug and suggesting its rational use in disease.

Drugs rarely affect similarly all the various kinds of cells in the body or indeed all the functions of the same cell. Strychnine seems to have a special predilection for the spinal cord and medulla oblongata, and within those parts it probably acts upon the incoming nervous paths rather than upon the outgoing. Quinine, on the contrary, seems to have no such choice, but affects nearly alike all kinds of the body's protoplasm. These selective peculiarities of drugs enable the physician to reach a desired tissue with great precision and without interfering with other tissues. Ehrlich's work with salvarsan is prophetic in indicating the possible discovery of specifics for other infections.

At present much attention is being given to the problem of drug action. It seems probable that in many cases there is a chemical union between the drug and certain constituents of the cell. In some cases indeed, it may be possible to link the reaction with specific parts of the molecules or with the ions of the substances in question or with the arrangement of the atoms within the molecule. If chemical union does occur a selective action of a particular drug for a particular group of cells may be readily explained by supposing that such cells, and not others, contain peculiar chemical substances for which the drug has an affinity.*

GEORGE J. SCHULZ,

Washington, D. C.

WHY CHILDREN LIE

Although deliberate lying, misrepresenting the facts of the case, and tendencies to "make believe", sometimes with marked elaborations, are extremely common in children, these deviations from absolute truth are much less well defined as abnormal conduct than is stealing.

Lying is almost universally connected with stealing as a means of defense, an effort on the part of the child to avoid the humiliation of confession and subsequent punishment. It is exactly what one would expect the child to do in his effort to protect himself. Successful lying which goes undetected gives the child, consciously or unconsciously,

*Lee, Frederic S.: *Scientific Features of Modern Medicine*. New York. 1911.

a sense of power and satisfaction owing to the fact that he has attained his end by his effort. This is especially true with the group of misrepresentations that are consciously utilized to cover up other misdemeanors.

The most vicious type of lying is that usually prompted by jealousy or by resentment toward members of the family or intimate acquaintances. This might be termed slanderous lying, the object of which is to misrepresent or place in an uncomfortable situation the individual about whom the lies are told.

Less offensive and not particularly serious is the lying of the child who is inclined to "put himself across" in a big way by exaggerating his achievements. Fabrications which tend to reflect to the credit of the child are normal mental processes in early life. Many children live in a make-believe world, and parents are apt to interpret the child's descriptions of his dream world as deliberate lying. But the whole motive is quite different, and except for making the child understood that he is not dealing with the real world and that everyone to whom he tells the tales understands that fact too, nothing need be done.

D. A. THOM,

Boston, Mass.

BIRTH CONTROL

Lord Dawson of Penn, Physician to King George of England, took this subject for a discourse.

Everyone, whether agreeing with Lord Dawson's views or disparaging them, must admire the courage which made him choose a subject at once so fundamental and so difficult, and the skill with which he has handled it.

Although there are many who still shrink with horror from any publication dealing with such a question, more and more are the rest of us coming to feel that nothing but good can result from honest, open, and, above all, *informed* discussion of problems which are of such vital importance, not only in individuals but still more so to the community as a whole. For upon their right understanding the future of the race largely depends.

We know that the Roman Church forbids birth control. We know that, nevertheless, it is largely practiced by nations which prefer the Roman-Catholic faith. We know, too, that it has been largely practiced among themselves, and that its use is increasing.

What we do not know, and what none but doctors can tell us with authority, is whether its practice is good or bad; or whether that, in turn, depends upon the methods adopted. And now that we have wise and eminent physicians and surgeons of both sexes, married and themselves parents, we are more likely to know than we have ever been before.

We are beginning, moreover, to suspect that, for want of such knowledge, there has been, and still is, an incredible amount of misery, a vast sea of suffering, both physical and mental. On the one hand we have indiscriminate, almost animal parenthood: On the other, nerve-strain and perhaps breakdown.

Given good health and adequate means (which need not be interpreted as large means) there can be nothing better than a large family. In every sense children with many brothers and sisters enjoy advantages. They educate each other. On the other hand, nothing can be worse than the large family which is the result of uncontrolled, unguided instinct. Probably few of the children survive, and of those who do so, a considerable proportion will be damaged or undeveloped.

Most of us feel that marriage without parenthood is imperfect—that the greatest gift of all is withheld. Human nature instinctively desires immortality, and the immortality comprehensible to all of us is that of seeing our children and the children's children, and knowing that when we go they will remain.

Most of us feel, too, that the only child, though it is infinitely better than no child, is handicapped, deprived of its rightful heritage. But the greater number of couples, under present conditions, cannot envisage more than three or four children. How then are they to behave?

Here surely is the most vitally important question, and one upon which there is room, certainly, for honest difference and opinion, but, above all, for scientific knowledge and accurate information.

Sentimentality, prudery, convention, even instinctive desire to protect the closest intimacies of human life from publicity, may stand in the way. But we cannot but be grateful to those who shed a clear light upon our darkness.

DR. B. SHERWOOD-DUNN,

54 Bd. Victor Hugo,
Nice, France.

DIAGNOSIS OF NEUROSYPHILIS (Clinical Presentation)*

Case 1.—Male, age 43. History of epileptiform convulsions 3 or 4 months apart, in 1917, and failing memory for 5 years.

In December, 1925, he developed status epilepticus, which was relieved by spinal drainage. Though he had a history of syphilis 9 years before, which seems to have been insufficiently treated, the Wassermann test on his blood and spinal fluid was negative.

After the severe attack in December he had occasional lighter attacks accompanied by aphasia, the twitching being more pronounced on the right side.

In February, 1926, his gait was staggering, he talked at random and, while actual sphincteric power was not lost, he showed complete *indifference* to sphincter control. His eye grounds showed signs of intracranial pressure.

As the convulsions, aphasia and twitching of the right side suggested a lesion in the precentral lobe and the x-ray showed calcification in the left frontal region, an operation was advised.

On March 30, 1926, his skull was opened, under local anesthesia with procaine and epinephrin, and a subcortical cyst and glioma the size of a hen's egg was found in the left frontal region. The cyst was enucleated and a free subtemporal decompression performed. X-ray treatments were later given for the glioma.

His recovery was good. One slight attack of aphasia occurred, lasting only a few minutes. All the other symptoms cleared up. He has now been working since last July.

This man had been considered a syphilitic for many years and had received a good deal of antiluetic treatment. His Wassermann test had varied, from time to time, and his spinal fluid had showed cells and globulin ++++. But at no time had there been any *pupillary disturbance*. This is important, as 90 percent of cases of neurosyphilis show changes in the reaction of the pupils.

Case 2.—Female, age 35, single. History of "sores" on the legs at 16 or 18 years; scars now visible. Her father and grandfather had the same trouble.

She now complains of progressive stiffness and weakness of the legs and dragging of the toes. Her sphincters are good but not perfect, as they yield when she coughs.

Her legs are spastic and she walks with the "scissors gait". The reflexes are increased and ankle clonus and Babinski's sign are present. Sensation is normal.

All the signs point to a lesion of the pyramidal tracts and nothing else. Is it syphilitic paraplegia or multiple sclerosis?

All Wassermann tests on the blood and spinal fluid have been negative; there are cells in the spinal fluid; colloidal gold tests are not conclusive; the pupils are normal.

Charcot gives the diagnostic signs of multiple sclerosis as: nystagmus, intention tremor and scanning speech. The first two of these are absent in this case.

This illustrates the difficulty of diagnosis in some neurologic cases. The patient was sent in for a spinal cord tumor, though she has had no pain or sensory disturbances. It may be syphilis. We shall probably use active treatment with arsenicals.

Reported by G. B. L.

THE ACIDS OF CHAULMOOGRA OIL*

The interest in the acids of chaulmoogra oil lies in the fact that their esters or sodium salts are now being used in the treatment of leprosy, which is still a scourge in most oriental countries and a distinct menace in several of the countries of Europe.

The natives have used chaulmoogra oil empirically for many years, rubbing it into the sores and taking it by mouth. Its oral use often caused severe gastrointestinal disturbances, but improvement in the leprosy was frequently noted. The oil is obtained from a variety of oriental seeds and plants.

In 1899 the first attempt was made to study this oil from a chemical and medical standpoint and it was used by hypodermic injections, but, while improvement followed, the injections were very painful, because the oil was so thick.

From 1899 to 1918 the favorite preparation for injection contained chaulmoogra oil, camphorated oil and resorcinol. Quite recently it was found that if this oil is heated with $\frac{1}{2}$ percent iodine it makes a very satisfactory preparation.

In 1918, Rogers formed sodium salts of chaulmoogra oil with sodium hydroxide and administered aqueous solutions of these salts subcutaneously, intramuscularly and intravenously, with good results. Dean, of Hawaii, formed the ethyl esters of the

*Clinic by Dr. Lewis M. Gaines, of Atlanta, Ga., before the Southern Medical Association, Nov. 15, 1926.

*Abstract of an address by Prof. Roger Adams, of the University of Illinois, when he received the Nichols Medal in New York, March 11, 1927.

mixed acids, which work well when given intramuscularly.

In 1907, Power discovered chaulmoogric and hydrocarpic acids, and that these acids are the active agents against leprosy.

Dr. Adams has been working for some time in an effort to synthesize these acids but has not wholly succeeded in doing so. He has, however, discovered that several substances of analogous chemical structure, which can be made rather readily in the laboratory, exert a specific bactericidal action upon the lepra bacillus, *in vitro*. Clinical experiments with these compounds are now being carried out at the leper colony at Culion, P. I.

The results of this scientific work leading toward the control and cure of leprosy can scarcely be overestimated.

THE SPRING SUN BATH FOR THE BABY

As the spring days get warmer, usually by the first of April, the area of the baby's skin exposed to the sun may be increased by rolling up the sleeves to the elbow, for five or ten minutes. Each week thereafter the duration of the sun bath on head and arms may be increased five or ten minutes, the amount depending on the rapidity with which pigmentation or tanning takes place.

Early in April, depending somewhat on the climate or weather, the stockings may

be taken off, at first one at a time, later both together, for five or ten minutes each, thus exposing the leg and knee to the sun. The period of exposure of the legs must increase five or ten minutes weekly thereafter.

By approximately the middle of May, when the baby's arms and legs have become accustomed to the sun baths and are tanned, more of the body can be exposed. The jacket and dress may be taken off for five minutes each day for a week, thus exposing the shoulders and neck as well as the arms and legs. As with the arms and legs the period of exposure of the neck and shoulders should increase five to ten minutes each week. By the end of May the sun bath may be given with all clothes off except the band and diaper, and by the first or second week of June the baby may receive complete sun baths with no clothing.

Care must be taken gradually to accustom each new part of the skin to the sunlight by starting with five-minute exposure and increasing by five- or ten-minute amounts each week. By the first of June the face, head, arms, and legs may be exposed for approximately an hour, whereas the complete sun bath including the trunk will only last five or ten minutes. By the end of June, however, the complete sun bath may be given for from one-half to a whole hour.

CHILDREN'S BUREAU,

U. S. Department of Labor.

VACCINATION

When some one tells you that vaccination is a "false theory", give him one fact.

In the War of 1870 all of Prussia's soldiers were vaccinated. There was no smallpox in the Prussian Army. The French army was not vaccinated. There were thousands of smallpox cases in the French army. Germany today has no smallpox, except isolated cases coming over the border from Russia.

In the late great war all the soldiers of civilized countries were vaccinated. Smallpox amounted to nothing in that war. One fact is more important than a lot of foolish guessing.

The Leisure Hour

Conducted by GEORGE H. CANDLER, M.D.

Sap and Stars

LAST night I saw Arcturus riding high,
Presaging that the winter, long and drear,
Is drawing to a close; and in the clear,
Soft dark, bright Vega blossomed in the sky.
Today the trees, so lately stark and dry,
Appear to know belated spring is near.
The sap is rising. Buds swell at the dear
Caress of southern breeze. The robins cry.

So, while the branches lose their naked form
And grow all misty in the quickening air
To greet the advent of the summer stars,
The sap flows up in me. My heart grows warm.
Buds of new purpose swell. Come visions fair
As earth's new, growing life heals winter's scars.

—G. B. L.



Why College Men Suicide, Etc.

THOSE hardy souls who have the temerity to wade thro this department month after month know that it wears no collar, bows at no particular shrine and (usually) calls a spade, a *spade*. Semi-occasionally, of course, it may be termed "an agricultural implement used to turn over the soil" but, unless the writer fails dismally in his intent, one logically deduces from the context that a spade is referred to!

Some quite nice people approve plain speaking; others, equally nice, reproach us for our candor. F'rinstance; "The Great Delusion" article, dealing somewhat frankly with the aggregation of K's, caused a whole lot of individuals to "take pen in hand" and tell us things. No less than three highly intelligent and estimable citizens were so wrought up over the kidding of their Kleagles that they "stopped their paper". Now, as anyone knows, THAT is inflicting punishment with a vengeance! When you tee-totally disagree with what someone says in print you "stop taking the paper" he said it in, just as the deaf adder stoppeth *her* ears and refuseth to hear the voice of the charmers, charm they never so wisely.

Now when someone argues with *me* I want to hear every word he utters—that per-adventure I may the more readily confound him and perhaps gain a convert to my side. Anyhow, if he beats me out I am ready to acknowledge defeat and revise my views. If everyone thought alike on every subject it would indeed be an uninteresting world to live in, wouldn't it? Nevertheless, the K.K.K. kontest is klosed with sincere appreciation of the commendations received and heartfelt sympathy for those who didn't like the statement that a whole lot of hoods and masks would be turned in or hidden in the garrets of dear old Indiana—*et al.* Today the papers state that membership in the Hoosier state has dwindled from some 200,000 to around 20,000. After all it seems safe to leave it to the American citizen. He may buy a brass watch *once*; after that he wears a genooine Waterbury. Yessir! And thats *that*!

People have been asking me to write something more about the garden. Others have suggested bass fishing as an exciting and timely topic. It *is*, but its hard to get frogs yet and they fine you for catching bass until June. Wait till May and I just feel that I'll bust out in the desired direction. Of course, *Gardenitis dig-up-us* may com-

plicate the annual attack of the little casting bug, but I never died from a "complication of diseases" yet. I fully expect to be able to take a Basserino in one hand and a bean in the other and put 'em both where they'll do the most good.

That reminds me to issue a solemn prophecy. Eve'thing not alla samee lookee. In *your* part of the world, as in mine this glad fourteenth day of March, you may hear the robin sing and see the foolish buds bust open, BUT "remember March, the Ides of March remember" and wait till May the first before you skip gleefully out with a trowel in one hand and a rake and assortment of "unusual annuals" in the other. Even then don't—please, PLEASE don't—imagine that the said annuals, when they come up, are going to look like the pictures on the packages. It is a sad commentary on things mundane—but they're *not*. I have found the lordly lupin languish; the portly portulacca prove puny; and even the merry mignonette mature most minutely. My scabiosa seed last year was "highly commended" *but* the flowers looked as tho' they were afflicted with scabies. Perhaps there's a family relationship? Roses, hollyhocks, delphiniums, petunias, dahlias and peonies perform prettily for yours truly and zinnias and cosmos are worthy of any man's confidence; but, beware, would-be horticulturists, of giving too much prominence to quite a number of the "beautiful things" the seed man offers—and pictures. You may have to cover bald spots with something else later. Having ambled around thus aimlessly, I will now comply with a request—several requests—and tell you why, in my opinion at least, college students and other tender young things commit suicide.

This really is a very serious subject not to be approached flippantly yet somewhere in the back of one's head springs up the idea that these performers of *felo de se*, themselves, have a flippant attitude towards life! Consideration, however, leads one to believe that most of these victims of *tedium vitae* are simply overwhelmed by the problems which confront or already have confounded them. You and I, admittedly mature, will, if pressed hard, admit that we ourselves have been hard hit many and many a time thro'out the years. And we, maybe, had the veils removed for us *gradually*. The young man or woman of today often has the whole seven pulled off at one

crack—and the sight of what is beneath is altogether too much for them. They simply pass out. It isn't, of course, the sporting thing to do, but it is quite conceivable to those who have stayed, that, under certain circumstances, it may appear the *only* way out.

Suppose we give the matter at least half an hour's serious consideration? Obviously, none of *your* grandparents or parents committed suicide *young*. It is equally evident that *you* resisted any such inclination. If, then, you and yours, who are of course average normal beings (or are you of those "above the average"?) failed to destroy yourselves, why should other individuals, possessing the same or even greater advantages, do such a thing? "Some mental twist, undoubtedly", you sapiently remark, "No one mentally sound could be such a fool." Your logic, of course, is unanswerable—no one can possibly say how brilliant or how futile any one of these lives might have been had they continued. Personally, I firmly believe that there are thousands living (some in "high places") whose mentality is not even comparable with that of those who destroy themselves in the flush of youth. The mere fact that they are alive proves that. Those who died thought too much, possessed too much knowledge and too little wisdom! Knowledge may be "attended by wisdom" it is true, but she attends at leisure and often keeps a long way behind.

Some of the most *unwise* people I have known (and know) have so much knowledge that they hurt you—and themselves; and some of the wisest men I have met wouldn't know Capricornus from Confucius or be able to define the difference between an osprey and an osteopath. Perhaps—to give another example—you know some eminently practical practitioner who is not aware that the *B. tularensis* exists and therefore wouldn't think of looking for a case of tularemia among his patients. Well, I know an eminent physician who knows so darned much about tularemia and other odd and unusual diseases, that he suspects something of the kind exists every time one of his very natural kids has an enteric disorder. He is a very *learned*, but not, by any means, a *wise* gentleman. By living a long time he may, of course, shed some of the things he knows and acquire a modicum of wisdom.

THAT is exactly what is the matter with the youngsters who have been startling the country with their suicides! There are a lot

more just like them and it may help just a trifle to diagnose their malady, for only so can they apply the remedy.

THE COLLEGE STUDENT WHO SUICIDES DOES SO BECAUSE HE KNOWS TOO MUCH ABOUT THINGS HE DOESN'T UNDERSTAND. He does not realize, unfortunately, that things which appear very misty or even dark, at eighteen, become apparent at thirty and quite transparent at fifty. If he would consult his grandfather he would undoubtedly learn that a whole lot of the things that worry him are "irrelevant and immaterial" and that most of the rest of the problems which perplex him so, will remain unsolved for all time. It isn't the best thing in the world for a young male with baggy pants and a growing *penchant* for the society of young females to know *too* much about hereditary tendencies, complexes and miscegenation.

Personally, I am not at all sure that modern methods of education along sex lines are not responsible for a great many of the tragedies and serio-comic disturbances which come to our attention every twenty-four hours. When *we* were kids, Jane knew she was a girl and John was aware of the fact that he was a boy just about as soon as the modern youngsters arrive at that stage of enlightenment. Jane, however, was more and more firmly told, as she grew bigger, that she mustn't play *too* much with the boys and John, while he liked the girls all right, kept his hands off them—to a reasonable extent! As "kids" they were *kept* "kids" and their romancing and adventuring were really of a very mild order.

Sooner or later, of course, each knew more than they were supposed to by their fond parents, but still, certain things just "weren't done"—and, the great majority *didn't* do them. Some, of course, did and "got away with it"—and some didn't. Anyhow, as a rule, they grew up, loved and married (if lucky) the loved ones and straightway proceeded to "replenish and multiply" quite regardless of whether they had sixty dollars a week or the same amount per month. In those days, if you had only a little money you had few things; if you had lots of it you had everything material you desired—but they *all* had babies.

Now, even on listening over the radio, I hear an eminent Divine at Denver, Colorado (*not* the "effete east"), bewailing to his flock, from the pulpit, the fact that young people tell him they cannot marry unless they use contraceptives. Ask your wife, if

she confesses to forty summers, and her (or *your*) mother, again, if she knew (or, in the mother's case, *knows*) what the word itself means? The bride of the passing generation did not go to the bridal chamber with a bichloride tablet concealed about her anatomy and the groom of the near past, even tho' he may not have been "snow white", rarely suffered from behavioristic peculiarities due to "repression". If he did, he didn't know it, thank Heaven; and, nine times out of ten, soon found and steadily trod the normal path.

I have been physician to and enjoyed the confidence of quite a large number of typical American families of various grades and I KNOW what I am talking about. The sex life of the lately-past and now passing generation was, generally, saner than that of the present. They didn't know so *much* so *early*—if ever—and they attained *wisdom* in such matters gradually. Now, they have the whole thing thrust upon and *at* them, even before they are really able to digest their own individual sensations.

They are served condiments in the milk stage and try to chew strong meat when they have only incisors in their mouths. Naturally, they soon find life palling upon them, or, having ridden a calf, imagine they have "dogged" all the steers in the herd and there is nothing else left to live for.

Particularly are they likely to thus run amuck if they have no abiding faith in a personal God and a hereafter. Little children, who firmly believe in the recording angel and "THOU, GOD, SEEST ME" do not, as a rule, lie, steal or become unmoral: Young men and women holding a firm faith in a hereafter wherein the good shall be rewarded and the evil punished, are quite likely to conduct themselves with reasonable propriety—first, because it is wrong to do otherwise and secondly because the sort of fathers and mothers who brought them up would be broken-hearted at any serious lapse on their part. Christianity, to me, at least, has always spelled LOVE and, loving children will not bring grief upon their parents. There is not much chance for the young suicides here is there?

NOW, "pep 'em up" when they're babies; feed them sex in one form or another from the time they enter the third grade; take them to picnics instead of sending them to Sunday school; let them read whatever they can get hold of and see whatever pictures are being shown and, at thirteen, these

youngsters will be calling fathers the "old man" and laughing (in public) at their "old woman's" funny ideas. They'll never go on their knees in prayer or contrition; they'll scoff at "religion"—as they understand it—and, having no fear of anything above and being so sophisticated that they laugh at every restraining influence below, they are not well equipped to meet the problems which will inevitably present themselves.

NOW too, they are so far apart from their parents that they do not deem them able even to give counsel. They may "hand out the dough" but, advice worth their taking? Never! Then comes college—a number of just such wild broncos herded together; each one striving to be a little more daring than the other. They seek out and read every tabooed volume; they think it "smart" to be atheistic or grossly materialistic and, generally, console themselves with the remark that as they'll "be a long time dead they may as well LIVE while they're living". Suddenly they (or some of them) discover that if you live without brakes, conditions can arise which may seem to make sudden death desirable. It is obvious, to them, that it is better to die than live indefinitely, all battered up. They will only be "a long time dead" there is nothing *beyond* that to trouble them—so, "here goes nothing", and, *it is gone!*

We, who have pulled at the oars over many a rough sea, wonder if it was *nothing* that went out? Somehow we sorrowfully feel that *something*, somewhere, will have to answer to the charge of desertion and suffer reduction to the rearmost rank of all. We may not believe in Hell-fire or Devils with tridents, but we MUST believe that, as our life came to us in better form that it did to our ancestors, so it must go on thro experience to some final perfection of Wisdom. If we are cowards enough to refuse to go forward we must go *back* and there be, indeed, DEAD for a long, long time.

If the troubled college youth will hang on to the ropes of Decency, Love, Faith and Hope, he will find most of his problems wiped off the board by an unseen, but friendly hand: those that remain have *never* been solved and *never* will be, in this world's class room!

Our grandsons' grandsons may think they *know* just where they come from but you may rest assured they will have no more idea than you have, just where they are *going* from here—or why they were sent on their way. Sufficient for us and them to

know that we have to make the objective—preferably with distinction.

ALL SET, NOW? Lets GO!

G. H. C.

TREATMENT FOR LAZINESS

Mix a large quantity of will with a moderate amount of skill, stir well and take a big dose before you leave home in the morning. If your system rebels at this treatment you don't need medicine—what you need is a swift kick between the hen-house and the barn.—*Medical Pickwick*.

FOR LACK OF A DERMATOLOGIST

Lady (to a man at bookstall): "I want an entertaining novel to read in the train; I should like the style to be rather pathetic, too."

Bookstall Clerk: "Will the 'Last Days of Pompeii' do?"

Lady: "Pompeii? I never heard of him. What did he die of?"

Clerk: "I'm not sure; I think it was some kind of an eruption!"—*Hygeia*.

"How do you find starting out as a new doctor, Sam? Lots of patients, I hope."

"Well, confidentially, in the mornings practically no one calls and in the afternoons the rush dies down a good bit."

—*Patchwork*

The acoustics of your hall are terrible! Nonsense! It's the Chemistry Building next door that you smell.

A CHANGE

The following conversation was overheard by a good friend of ours at a popular men's club in Detroit, not so long ago and thought good enough to set down:

"The doctor says I must cut out cigars, drinking and late hours."

"That means a decided change in your mode of living, then, doesn't it?"

"It means nothing of the kind," snapped back the short-tempered 'patient.' "It simply means I change doctors."—*Pharmaceutical Advance*.

SEVENTEEN

An old man heard of a famous surgeon who could restore youth by performing a gland operation.

Going to the physician, the old man said: "Could you make me 17 years old?"

"Certainly I can," the surgeons responded, and the operation was performed.

Several months later, the doctor sent a bill.

"Nothing doing," the patient responded. "I am under age and you cannot sue me, and if you say I am not under age, I'll sue you for fraud."—*Bnai Brith Magazine*.

Funny world! To require fitness in doctors, lawyers, etc., and do nothing about parents.—*Publishers Syndicate (Chicago)*.

If religions and science quarrel, it is because we have neither religion enough nor science enough.—*Burlington Hawk-Eye*.

Diagnostic Pointers

NEURASTHENIA

A neurasthenic is born, not made. He has always been a neurasthenic, more or less. If his trouble came on suddenly, when he was formerly normal, it probably is *not* neurasthenia. He will always show such conditions as vasomotor instability, easy fatigue, extremes of exaltation and depression, lack of energy, etc.

In organic nervous diseases there will always be a block somewhere between the brain and the periphery, and an unequal degree of pathology on the two sides of the body.—“*Some Clinical Fallacies*”.

UREMIC HEADACHE

Headache due to uremia has sometimes been treated as ear disease. The whole patient must be carefully studied.—DR. JOSEPH BECK, of *Chicago*.

SYPHILIS AND JOINT DISEASE

Do not forget the possibility of syphilis in joint cases. Joint symptoms usually appear in the tertiary stage, but you may find a subacute synovitis in the secondary.—*Urol. & Cutan. Rev.*

MYCOSIS AND ECZEMA

Mycosis begins on one finger and gradually spreads: Eczema appears on both hands simultaneously.—DR. LYNN B. GREEN, of *Kansas City, Mo.*

CURE OF CANCER

The minimum criterion for the cure of cancer is three years free from all symptoms. If there are distant metastases, the prognosis is hopeless. These should be searched for by x-rays and otherwise. A case of cancer of the breast was clear for 8 years and then developed a metastasis in the lung.—DR. GLENVILLE GIDDINGS, of *Atlanta, Ga.*

LOW RESERVE KIDNEY

Many cases of so-called preeclamptic toxemia are more accurately classified as low reserve kidneys. These patients rarely have a blood pressure higher than 150/90; the albumin in the urine does not exceed 2 Gm., per liter; the edema, headache and malaise are mild or moderate; the blood chemistry

and renal permeability are not altered; improvement follows rest in bed and regulation of the diet; and eclampsia seldom develops.—DR. J. WHITRIDGE WILLIAMS, in *J.A.M.A.*

TANNING AND ULTRAVIOLET

Those patients who pigment freely get the most benefit from ultraviolet rays; and this value depends upon the endocrine status of the individual. Thyroid types burn: adrenal types tan.—DR. J. C. ELSOM, of *Madison, Wis.*

CLINICAL SYPHILIS

We must disregard a negative Wassermann test when clinical symptoms point to syphilitic inheritance, and must remember that heredosyphilis has a special affinity for tissues derived from the embryonic ectoderm—the skin, the structures of the eye, the brain and nervous system, and the posterior part of the pituitary gland.—DR. HILGARTNER and LANKFORD, in *Texas State J. Med.*

JUDGMENT IN SURGERY

The practice of major surgery for a minor condition is not good surgery, and it is prudent to keep in mind the fact that all forms of surgery exact a definite toll of human life.—DR. P. BROOKE BLAND, in *Am. J. Obst. & Gynec.*

LUMBAR PAIN IN MAMMARY CANCER

Severe pain in the lumbar region, which does not yield to treatment, is sometimes the earliest sign of cancer of the breast. This emphasizes the importance of thorough physical examinations.—DR. E. LIEK, in *Zentralbl. f. Chir.*

FAT WOMEN

It may be accepted as a rule which has very few exceptions that fat women under forty, and many who are considerably older, are fat from causes which are endocrine and not alimentary.—DR. LEONARD WILLIAMS, in “*Obesity*”.

DUODENAL ULCERS IN CHILDREN

If a careful investigation of chronic abdominal complaints in children is made,

which includes roentgenologic studies, it is probable that the incidence of chronic peptic ulcer in children will be found to be greater than has hitherto been believed, and that these patients may be easily relieved of rather distressing symptoms.—DR. L. B. DICKEY, in *Am. J. Dis. Child.*

TRANSMISSION OF HEREDITARY SYPHILIS

The transmission of syphilis to the offspring appears to be through the medium of the mother. Children of men with active syphilis of the skin, heart or nervous system are born free from symptoms unless the mother also is infected.—DR. G. PICCARDI, in *Gior. ital. di dermat. e. sifi.*

SELF-INFLICTED "SKIN DISEASES"

The sudden appearance of well marked, sharply defined, asymmetrical skin lesions on accessible portions of the body, coming on at night or some time when the patient is alone and usually surrounded by normal skin, should at once arouse suspicion of malingering.—DRS. CREGOR AND GASTINEAU, in *Urol. & Cut. Rev.*

CLARIFYING URINE

Clarify urine for the detection of albumin by adding to 20 cc. of the urine 10 drops of potassium permanganate solution 1:50, and after two minutes 6 drops of hydrogen peroxide solution. After allowing to stand for five minutes the mixture is filtered and the filtrate examined for albumin in the usual way.—DR. LOTIER, in *Druggist Circular.*

CYCLIC VOMITING

Cyclic vomiting in children is not an entity and has no specific cause. It is probably of reflex origin and is usually associated with abnormalities in some part of the digestive tract.—DR. LEON T. LEWALD, in *Radiology.*

MORAL DISEASE

Man has three natures: physical, mental and moral. If his physical body is diseased, his mental nature will be upset. If careful

investigation fails to reveal any abnormality in his physical or mental condition, but his symptoms still persist, do not fail, no matter what his social status, to go thoroughly into his moral condition, because the causes of symptoms are frequently found in this field.—DR. WILLIAM H. MERCUR, of Pittsburgh, Pa.

CANCER METASTASIS FROM PROSTATE

In adenocarcinoma of the prostate, metastasis to the bones, especially the vertebrae, pelvis and head of the femur is very common. Look for these before suggesting operation.—DR. GLENVILLE GIDDINGS, of Atlanta, Ga.

SUCCESS IN DIAGNOSIS

Every family history is important and frequently contributes 70 percent toward an accurate diagnosis.

The laboratory can help us toward a diagnosis, but few or no laboratory findings are pathognomonic.

In order to be a successful diagnostician, a man must have the faculties of curiosity and wonder; be capable of reflective thought; and think honestly.—DR. SIDNEY R. MILLER, of Baltimore, Md.

CHRONIC SUPPURATIVE OTITIS MEDIA

In cases of otorrhea, exclude or treat tuberculosis and syphilis first. Clear up adenoids before attempting ionization. Only cases of simple otorrhea are suitable for ionization treatment.—DR. A. R. HOLLENDER, of Chicago.

NEW SIGN OF APPENDICITIS IN WOMEN

In many women chronic appendicitis is announced by pain recurring two or three days before each menstrual period, sometimes lasting to the first day of menstruation. The pain is located in the lower abdomen and spreads as far as McBurney's point and down to the leg. Its restriction to the right side of the body differentiates it from the pain in ovarian or uterine dysmenorrhea.—DR. CASTANO, in *J.A.M.A.*

Current Medical Literature

CARBON MONOXIDE POISONING

The symposium section of the *International Med. Digest* for October, 1926, consists of a rather thorough discussion of the various aspects of carbon monoxide, which is said to be one of the most widespread and important poisons associated with human life and industry.

Illuminating gas contains from 5 to 30 percent of CO, and the exhaust gases from internal combustion engines contain 5.3 to 6.8 percent. There is danger in exposure for any considerable time to air containing carbon monoxide in the proportion of 15 parts to 10,000. A small, popular, twenty-three horsepower automobile engine, "warming up" in a garage 10x10x20 feet, with closed doors, would contaminate the air to the danger point in 3 minutes. In 5 minutes the concentration of CO would be sufficient to produce asphyxia, and in a few more minutes death would result.

Carbon monoxide in small quantities may produce symptoms which do not result in death. Traffic policemen on foot, taxicab starters at railway stations, housewives working where gas pipes are leaking, and others who are exposed to non-lethal quantities of CO, frequently develop headache, nausea and loss of appetite. Henderson states that when the hours of exposure to CO, multiplied by the number of parts of that gas per 10,000 of air, give a product of 9, headache and nausea appear; and when the product is 15 or more, the conditions are dangerous to life.

A peculiar feature of headaches due to carbon monoxide is that they frequently do not come on until the patient comes out of the gas into the fresh air. Dizziness and staggering are quite common, so that several observers believe that victims of CO poisoning are not infrequently accused of being "drunk." All symptoms are exaggerated by exercise, eating, stimulants and high temperature or humidity. Individual susceptibility to this poison varies considerably.

Carbon monoxide has an affinity for hemoglobin 300 times greater than has oxygen and readily replaces the latter gas in the blood, giving rise to serious secondary symptoms in cases of severe but nonfatal poisoning. Steel workers and others who are more or less constantly exposed to CO frequently show a polycythemia of 6,000,000 to 9,500,000 red cells and hemoglobin from 95 to 125 percent.

To minimize the danger of poisoning with this gas: avoid the use of rubber or flexible metal tubing for house connections to the gas line; see that all gas-burning devices are connected to the chimney flue; never leave a gas flame turned low; and open the garage doors wide when the engine is running.

When a person is overcome by carbon monoxide he should be carried into the open air at once and artificial respiration by the Shaefer method should be begun without a moment's delay. As soon as practicable, inhalations of oxygen should be given, either through a special inhalator, a gas anesthesia machine or by means of a nasal catheter. The victim, as soon as breathing is established, must lie flat and be kept as quiet as possible, to protect the weakened heart. He must also be kept warm.



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RESUSCITATION FROM CARBON MONOXIDE

Showing the use of the inhalators devised by Drs. Henderson and Haggard, of the Yale University Medical School, combined with the Schaefer method of artificial respiration.

The use of *lobeline* as a respiratory stimulant has been recommended by Behrens and Pulewka, who claim to have caused complete respiratory paralysis in a cat by means of CO, and then restored respiration by intravenous injections of 0.3 to 2 mgm. of lobeline hydrochlorate.

Prevention of this condition is better than cure, and if people will use common sense in applying what we now know about this gas, many cases of poisoning can be avoided.

GONORRHEA TREATED WITH NEUTRAL ACRIFLAVINE IN GELATIN

For years the medical profession has been searching for the ideal method of treating acute gonorrhea by means of antiseptics, and while that may not yet be found, the suggestions of Drs. Russell D. Herrold and Harry Culver, in *J.A.M.A.* for Feb. 12, 1927, look like a considerable advance in the proper direction.

These authors remind us that the effects of antiseptics on the body cells, as well as those on the gonococcus, must be considered, and with this idea in view they decided to try something other than plain water for dissolving the antiseptic. They found that neutral acriflavine which, in physiologic salt solution, is irritating in a strength of

1:2000, could be used as strong as 1:400 if dissolved in 10 to 15-percent gelatin solutions.

The solutions were prepared by dissolving the desired quantity of neutral acriflavine in distilled water and heating the solution to about 60°C. The gelatin was then added and the mixture stirred until it was dissolved.

Careful tests were made to determine the effectiveness and lack of irritating properties possessed by these solutions.

The results seem to indicate that there are fewer follicular infections than with aqueous solutions. The thick sticky solution remains in the urethra for a longer period after treatment than aqueous solutions. Finally, it is an emulsoid colloid or protector, and has all the added advantages peculiar to colloids in treatment of infections of the mucous membrane.

The gelatin-acriflavine mixture solidifies at room temperature, so it was necessary to use 8-ounce, wide, vacuum jars which kept the gelatin in a semifluid state for from ten to twelve hours. This is practicable for office use since it is necessary only to heat the mixture each morning and place it in the vacuum jars. The urethral injections were given daily and retained for eight minutes. The patient supplemented the treatment at home by the injection of a mild silver preparation, but the rapid control of the discharge and the relief of the symptoms of irritation, frequently after the first or second injection, would seem to leave no doubt of the direct effect of acriflavine in gelatin. Strong silver protein was used in 1-percent solution, with 2-percent gelatin, as the second step in office treatment, and served as an intermediate test between the acriflavine and the final or silver provocative tests.

It is possible to use the gelatin mixture for other than office treatments when small quantities of gelatin are used, such as 1-percent, as it does not coagulate at the lower temperature and may be combined with neutral acriflavine in higher dilution of this drug, or with strong silver protein and many other antiseptics. It is being used in this way at the present time in some cases.

Complete early clearness of the urine of many of the treated patients, often without any marked intermediary stage of shreds and flocculi, would seem to indicate that there is less desquamation than when aqueous solutions are used.

One of the most striking results noted was the low percentage of cases complicated by posterior infection. There were only eighteen, or 16.5 percent, posterior infections out of the 109 selected for the foregoing method of treatment. The cases selected were, as nearly as could be determined, recent infections and not acute exacerbations of chronic infections. Only a few patients had a discharge of longer than four days on the initial examination. There was a larger proportion of posterior complications among those who had a discharge for several days before treatment than with a discharge of short duration. The average

duration of the discharge before treatment in the cases in which ultimately there were complications was 5.4 days, while the average duration of those which remained uncomplicated was 2.5 days. The average time until cure of the uncomplicated cases was 3.2 weeks, and the average time of cure of the patients with posterior complication was 8.4 weeks.

This method of treatment has been in use for approximately two years, and many patients included in this report have been kept under observation for longer than six months for appearance of relapses or late sequelae, such as stricture. There has been, in a large proportion of such cases, almost immediate stoppage of the discharge and the acute inflammation and pain in the urethra.

The use of neutral acriflavine in gelatin has given results distinctly superior to any previous routine of treatment. There is a lower percentage of complications and in the uncomplicated cases there is a marked reduction in the period of time until cure is effected. There is in addition a notable decrease in the sequelae, which is apparently due to less involvement of the urethral glands and fewer localized areas of ulceration or infiltration, and this would seem to indicate that there may be less late or subsequent gonorrheal pathologic changes with this method of treatment.

IRRADIATED FOODS AND BONE TUBERCULOSIS

It has been shown that food which has been exposed to ultraviolet irradiations has a favorable effect in cases of rickets.

In the *Brit. J. Radiol.* for 1926 (page 65), Pattison reports his results with this method in treating bone and joint tuberculosis in children. Roentgenograms made after 2 to 6 months of treatment showed marked improvement.

These cases were given 1½ pints of milk daily, and ½ pint of this milk was exposed to the rays from a mercury vapor lamp at 2 feet for ½ hour each day.

Diet and local and general treatment were helpful.

EPHEDRINE IN HAY-FEVER

In *Am. J. Med. Sc.* for October, 1926, Drs. Fred W. Gaarde and Charles K. Maytum, of the Mayo Clinic, report their findings on 26 cases of hay-fever treated with ephedrine, 13 of whom obtained complete or almost complete relief for from 3 to 7 hours after each dose.

The drug was given by mouth, in capsules containing 60 mgm. (about 1 grain), 1 to 3 times in 24 hours. Most of the patients showed slight nervousness, rapid pulse, and tremor soon after taking the doses, and a few found these symptoms very annoying. This seemed to depend on the nervous status of the patient.

Five patients had fair relief for 2 or 3 hours after each dose; two had full relief from 60 mgm. doses, but the nervous symp-

toms were so severe that they preferred the lesser relief obtained from 30 mgm.; three patients took one dose and refused to take more. All were out and about their usual duties and were hard to control.

The authors feel that ephedrine fills a definite place in the symptomatic treatment of hay-fever.

LIVER DIET IN PERNICIOUS ANEMIA

In the *Boston M. & S. J.* for August 26, 1926, Drs. W. P. Murphy and G. R. Minot go into rather full details regarding the diet which they had previously recommended in pernicious anemia and give a number of sample menus.

This diet contains large amounts of complete proteins—liver, kidneys and chicken gizzards—muscle meat, fruits and green vegetables, with comparatively little fat and the carbohydrates proportioned to the other foods. The full diet carries about 2500 calories, with 135 Gm. of protein, 340 Gm. of carbohydrate, and not more than 70 Gm. of fat.

The utmost culinary skill is often required to prepare the foods in a manner acceptable to the patient. A number of small meals rather than 3 larger ones may be found suitable in many cases. If diarrhea occurs, reduce the amount of fruit. If the patient can take very little food, be sure that he has liver or kidney and fruit, adding other things as it becomes possible.

LOCAL ANESTHESIA IN GENERAL PRACTICE

In the April, 1926, *Practitioner* (London), Dr. W. Quarry Wood, of Edinburgh, suggests that local anesthesia should be more widely used by general practitioners, as general anesthesia is a highly technical specialty and trained anesthetists are not always available in remote parts of the country.

There are two classes of cases where general anesthesia is unjustifiable: In minor surgical conditions and in acute abdominal emergencies which must be dealt with at once, by the practitioner alone, or where the patient, because of respiratory disease or other condition, would be jeopardized by a general anesthetic.

The equipment for practicing local anesthesia is very simple, consisting of a good 10 cc. syringe; two sizes of needles (one 1 inch long and fine; the other 3 inches long); tablets of procaine and epinephrin or ampules of prepared solution; a 4-ounce measuring glass; and some means of sterilization. It is important that the short needle shall be *perfectly sharp*, so as to cause the patient as little pain as possible at the first prick.*

The disadvantages of local anesthesia are that it requires the hearty cooperation of the patient, which is not always obtainable

from nervous persons; that the temperament of the surgeon must be calm and patient; that it cannot be used over inflamed or edematous areas or in acute sepsis; and that it is unsuitable to many intra-abdominal operations, because of the pain caused by traction on the mesentery.

Its advantages cannot be overestimated. It is highly successful in such minor operations as removal of small tumors and cysts, amputation of fingers and toes, hemorrhoidectomy, circumcision, correction of hammer-toe and hallux valgus, skin grafting, and many others.

In surgical emergencies, occurring in critically ill patients, local anesthesia may permit such life-saving operations as enterostomy in intestinal obstruction and strangulated hernia, drainage of acute empyema, tracheotomy, cerebral decompression, and suprapubic cystotomy.

Every physician should learn the technic of infiltration anesthesia and possibly the simpler regional procedures and be prepared to use this method promptly should need arise.

THE COMMON COLD

The symposium section of the *International Med. Digest* for Jan., 1927, goes very fully into the question of the "common cold", which is by no means such a simple malady as some people appear to think.

Analysis of statistics for several large groups of persons shows that, on an average, one day is lost from work, by reason of colds, by every member of the group. On that basis—which is very conservative—if each member of our population lost a day from colds each year, and the day's income be averaged at only \$5.00, the annual financial loss would run well over \$500,000,000.

Today the common cold is generally regarded as an infectious disease. However, the possibility of the nonbacterial origin has been suggested. Capt. Lewis Bibb, from a study of 891 cases, believes the evidence is in favor of a nonbacterial origin. A review of the literature shows that the majority of observers, with the exception of those who believe in a filtrable virus as a cause, acknowledge their inability to demonstrate any one specific organism as the primary etiologic factor.

Summarizing the present knowledge of the bacteriology of common colds, one must say that, as yet, there has not been found any specific organism that can be considered as the etiologic factor. It is probable that a number of bacilli are responsible in different epidemics and in different individual cases. The possibility of a filtrable virus as specific cause for rhinitis is interesting, but up to the present time the evidence is too conflicting to accept it as a fact.

Schade, in a statistical study of 750,000 soldiers with reference to the effect of cold weather, found that the incidence of colds was directly proportional to the coldness of the weather and was parallel with the occurrence of cases of freezing and frostbite. A

*The complete technic of local anesthesia will be found in *CLIN. MED.* for April, 1926, p. 225 and for March, 1927, p. 182.—Ed.

very painstaking statistical investigation of the influenza epidemic of 1918 was made by a special committee on "Atmosphere and Man", appointed by the National Research Council of the United States. One of the most definite conclusions reached in the investigation was to the effect that, of all factors considered, the state of the weather was the only one which showed any convincing causal relationship with the destructiveness of the epidemic. Indeed, it has been definitely proved by these studies and by animal experimentations, that weather is an important cause of colds.

However, colds arise not from the effect of cold alone but from abnormal states of the atmosphere. The abnormal states in the atmosphere depend mainly upon the relationship between temperature and humidity. If a disturbance in this relationship occurs, there is a conflict within the nose between its function as a respiratory organ and that as a heat-regulating organ acting in conjunction with the skin.

In concluding the consideration of the causes of colds, it seems hardly necessary to say that diseased conditions of the nose and throat are most important factors in predisposing to colds. Whenever a cold has persisted for longer than the usual time a thorough nose and throat examination is indicated. Infected adenoids or tonsils, marked obstruction of the breathing space in the nose with blocking of the ventilation of the sinuses, chronic sinus disease—these are conditions which should be remedied if we are to expect any results.

The common cold usually runs a definite course of five to ten days, and while it is true that the patient practically always recovers spontaneously, there are many reasons why the disease should not be allowed to run its course without some effort to curb the extent and duration of the infection.

The treatment of colds can be divided into the treatment of the early stage and that of the later stage. The object of treating a cold in the early stage is either to abort it or to limit its extent to a small part of the respiratory tract. The abortive treatment may be constitutional or local. The most popular constitutional treatment has always been some method of making the patient sweat. Modern medicine has discovered nothing better than the "old-fashioned" treatment: The hot bath followed by a hot lemonade to which has been added a tablespoonful of whisky. The patient then takes a 10-grain Dover's powder and goes to bed with an extra blanket over him. This treatment is still popular and deservedly so.

Atropine and camphor are given to dry up the secretions and they do give some temporary relief.

Every person with a cold would be better off and his cold would run a shorter course if he remained in bed. Furthermore, he would be less likely to spread the infection. However, this entails many practical difficulties. The cold sufferer should at least remain indoors, where there is less chance of variation in temperature.

How shall we prevent colds? It is axiomatic that prevention of any disease depends upon the removal of the cause. We have seen that there are two groups of causes; the predisposing causes—which affect the patient's resistance, and the exciting causes—the bacteria—which are directly responsible for the infection. In the consideration of the prevention of colds the important items are hygiene, out-door life, hardening of the body and the employment of vaccines.

A very great factor in the cause is the absence of moisture in the air of our living rooms.

Dr. Dublin, who is statistician for the Metropolitan Life Insurance Company, says, "epidemics of cold begin the day we heat our homes and stay with us until the fires go out." It is important that some method be devised to provide more moisture in our living rooms when heated by radiators. Placing vessels of water near the radiators has been suggested.

In the consideration of hardening the body to exposure, the avoidance of fatigue cannot be overemphasized. Infection takes place much more easily when one is tired. There are people who never get colds except when they are in a state of physical exhaustion. To avoid infection one must avoid fatigue. A good skin tonic is a cold shower bath followed by brisk rubbing with a Turkish towel. As a rule it is better to begin with a hot bath and finish with a cold shower. This is best taken in the morning soon after rising.

Some physicians are now using a new method of hardening and toning the skin with good results. Ultraviolet rays when allowed to shine on the skin for a few moments produce an artificial sunburn. Repeated exposure to the ultraviolet ray results in a coat of tan and as the skin becomes tanned it becomes more indifferent to variations of heat and cold.

It is too frequently forgotten that colds are contagious and the discussion of prevention would be incomplete without a warning to avoid contact with people who have a cold. Epidemics of colds will never disappear until the cold is recognized as a contagious disease and the sufferer is properly isolated.

A review of the literature on the prevention of colds indicates that after diseased conditions of the nose and throat have been ruled out, the best prescription is hygienic living *q. s. ad* common sense.

ACTINOTHERAPY IN PEDIATRICS

In the *Am. J. Dis. Child.* for December, 1926, and January, 1927, Dr. Frederick W. Schultz, of Minneapolis, contributes a scholarly article on heliotherapy and actinotherapy (he distinguishes between the two), as applied to pediatrics.

The article is divided into sections, and each section is followed by an extensive bibliography, rendering it of especial value to students.

The sections are: Historical; sources of ultraviolet rays; physiologic action of light

on, (a), blood, (b), metabolism, (c), pigmentation; heliotherapy and actinotherapy in various diseases, especially tuberculosis and rickets.

A few points from this article will be of interest.

Rollier reports that heliotherapy is practically as effective in adults as in children (contrary to a fairly widespread belief), and has obtained permanent cures in those patients who work in suitable surroundings after leaving the sanatorium.

Lucas, using heliotherapy for peritonitis, obtained better results when an operation was first performed and then sunlight used as soon as the distention was relieved.

Robertson had excellent results with quartz lamp therapy in cervical adenitis, lupus and tuberculids. He ran his lamp on 250 volts direct current, with a resistance so that 140 burner volts were produced with 2.5 current amperes. Exposures were made daily, beginning with 3 minutes at 39 inches and increasing 3 minutes each day, while at short intervals the distance was decreased by 4 inches, until 30 to 45 minutes at 20 inches was reached. The eyes were protected. The penetrating power of the rays was increased by painting the skin with colloidal silica ointment.

Powers, Park, Shipley, McCullom and Simmonds, irradiating rats with a mercury vapor lamp, found that the effect on growth and calcification of the skeleton was similar if not identical with the results produced by sunlight and cod-liver oil.

Tisdall exposed rachitic infants to ultraviolet rays from a mercury vapor quartz lamp for short periods, and obtained a marked increase in both the calcium and inorganic content of the blood serum.

Steenbock and Daniels reported that by exposing wheat, rolled oats, corn, hominy, cream of wheat, shredded wheat biscuits, corn flakes, patent wheat flour, cornstarch, meat, milk and egg yolk to ultraviolet rays they can be endowed with rickets-preventing properties. This is probably due to the presence of lipoidal constituents.

This article should be procured and carefully studied by all who are seriously interested in the possibilities of ultraviolet therapy, as it is the most exhaustive discussion of the subject we have seen and is accompanied by a bibliography which, if not absolutely complete, is sufficient for the work of any student along this line.

TREATMENT OF EARLY SYPHILIS

In the *Bul. Johns Hopkins Hosp.* for July, 1926, Drs. J. E. Moore and A. Keidel present a valuable, practical discussion of the management of cases of syphilis diagnosed in the early stages. They believe that, under the best possible conditions, 100 percent of primary cases giving a negative Wassermann test can be cured and that 80 to 95 percent of the very early secondary cases are curable. The other 5 to 20 percent are likely to develop neurosyphilis in spite of our best efforts.

The treatment, to be successful, must be continuous and must extend over a period of at least one year after the Wassermann reaction and cerebrospinal fluid become and remain negative. The probability of cure is in direct proportion to the duration and regularity of the treatment. Only 10 percent of patients who receive 8 doses or less of arsphenamine are cured; after 2 courses of arsphenamine, with mercury between, 37 percent were cured; after 3 courses, 56 percent and after 4 courses or more, 78.8 percent of probable cures were obtained.

The treatment recommended consists of 8 injections of 0.4 Gm. of arsphenamine (the authors prefer it to neocarsphenamine or the other forms) at intervals of one week. Women receive 0.3 Gm. at each dose. Subsequent courses consists of 6 injections.

Between these courses the patient receives mercury by inunction daily, or intramuscular injections of insoluble bismuth salts at suitable intervals. Potassium iodide is given continuously. The first mercury course is 4 weeks. Later they are 6, 8 and 10 weeks.

During the courses of arsphenamine the Wassermann test is made on the blood at each injection, and at intervals during the courses of mercury and the probationary period. After 5 months of treatment a complete study of the spinal fluid is made.

The criteria of cure involve a full year of probation, during which the patient receives no treatment, develops no lesions, and shows consistently negative Wassermann tests at frequent intervals. At the end of a year, a complete physical and neurologic examination must show no evidence of progress in the disease, especially in the nervous and cardiovascular systems.

A syphilitic patient should never be released from periodic physical and serologic examinations during his entire lifetime.

CHLORAMINE IN SURGERY

The powerful disinfectant action of the chlorine derivatives, typified by Dakin's solution, was fully demonstrated during the war and now Dr. Wilhelm Langstein recalls attention, in *Wien. Med. Wchnschr.* for Dec. 18, 1926, to the fact that, in chloramine,* we have an antiseptic which is superior even to Dakin's solution, because it is equally or more effective, simpler to use, free from undesirable side actions and cheap.

Chloramine is stable indefinitely and solutions may be kept, in closed vessels, for at least 2 weeks, which increases its value in ordinary practice and in minor surgery. Its toxicity is low and when used as a surface antiseptic there is probably none whatever.

Its bactericidal action is superior to that of bichloride of mercury, in the presence of albuminous substances. It is 20 times as effective as liquor cresolis when used in the same strength. A 2-percent solution of chloramine is equivalent in action to 60-percent alcohol.

*Chloramine is well known, in this country, under the trade name of chlorazene.—Ed.

Dr. Langstein has been using chloramine for 3½ years as an irrigation for infiltrated wounds, abscesses, pus pockets, empyema, peritonitis, phlegmons, osteomyelitis, ulcers, etc., and finds that it acts as a disinfectant and deodorant, hastens granulation, increases the hyperemia of the tissues and washes the wounds with their own secretions. He pours a ¼-percent solution into suppurating laparotomy wounds. The deodorant and oxidizing power are notable in foul wounds.

In using large quantities in deep wounds, such as empyema cavities, it is best to dissolve the chloramine in physiologic salt solution at body temperature. In cystitis he uses a ½-percent solution, warm, with indicated internal treatment.

For hand disinfection a ¼-percent solution is used, and no irritation results after scrubbing the hands with it for months.

IS DIABETES CONTAGIOUS?

The death rate from diabetes has doubled since the beginning of this century, and Dr. D. H. Bergey, professor of hygiene and bacteriology in the University of Pennsylvania, feels that there are grounds for believing that the disease is communicable.

In *Science News-Letter* for Jan. 1, 1927, Dr. Bergey reports that rabbits inoculated with carefully filtered secretions from diabetic patients developed symptoms of the disease in from 1 to 3 weeks.

The doctor suggests that diabetes is caused by an ultramicroscopic organism or filterable virus, and that if this virus can be cultivated and studied we will be on the way to controlling a disease whose presence is becoming alarming.

PROPHYLAXIS OF MEASLES

An editorial in the *International Med. Digest* for October, 1926, calls attention to the fact that measles is the most prevalent disease of infancy and early childhood and one of the two most fatal, and summarizes the work done in the way of prophylaxis.

Park and Freeman, and also Haas and Blum, reported interesting studies in the *J. A. M. A.* for August 21, 1926. Injections of serum, blood plasma and fresh, whole blood from measles convalescents, in quantities from 5 to 10 cc. were made intramuscularly into the buttocks and conferred immunity for three weeks upon more than 75 percent of exposed children; and for three months or more upon more than half of them. The prophylactic value of the blood or plasma depended largely upon the

period of convalescence of the donor. The sooner the plasma was collected, after defervescence, the greater its value.

Children who are not wholly protected by these injections have the disease in a much attenuated form and are surprisingly free from dangerous complications, such as bronchopneumonia and otitis media.

At the Willard Parker Hospital, blood was drawn, under strict aseptic precautions, from the 9th to the 21st day after defervescence. In adults it was drawn through a 16-gage needle into a 500-cc. bottle containing 20 cc. of a 25-percent solution of sodium citrate and 0.3 Gm. of oxyquinolin sulphate (chinosol) as a preservative. The bottles were put in the ice box and the cells allowed to settle; or were centrifuged and the plasma pipetted off and put up in small vials or bottles. Blood for a Wassermann test was taken at the time of the bleeding, and the plasma was tested for sterility at the time of bottling it.

Park and Freeman believe that the intramuscular injection of 6 cc. of convalescent serum or plasma into a child under 3 years old, and from 6 to 10 cc. into older children, will protect them from measles, or will greatly modify the attack and minimize complications.

TRYPARSAMIDE IN PARESIS

Drs. Samuel B. Hadden and George Wilson, of Philadelphia, have treated 52 cases of paresis with nothing but tryparsamide and report as their personal opinion that 40 percent of the cases so treated showed beneficial results, based upon three years' observation.

Their method, as described in the *J. A. M. A.* for Feb. 12, 1927, was to give 3 Gm. of tryparsamide, dissolved in 10 cc. of distilled water intravenously, for 10 doses and then rest 6 weeks before beginning another course.

The clinical results far surpassed the serologic findings. The general health of the patients improved markedly. They gained in weight and strength. Tremors and speech defects were diminished.

Bad effects were few: 2 cases of jaundice, 2 of Herxheimer's reaction, one of dermatitis and two of visual defects the result of treatment.

The authors feel that the danger to the eyes has been overemphasized and that tryparsamide is the best drug so far introduced for treating neurosyphilis. Better results probably follow the combined employment of mercury, bismuth or other arsenicals.

New Books

WILLIAMS: OBESITY

OBESITY. By Leonard Williams, M.D. London & New York: Humphrey Milford, Oxford University Press. 1926. Price \$3.35.

When one can find sound and valuable instruction, combined with the interest of a novel, such a book is well worth considering. Here is a book of that kind.

No reliable work on obesity, in English, has appeared for a number of years, and during that time a great deal has been learned about metabolism and the endocrines. For these reasons this book is timely.

The author has dealt with his subject from the historical and literary, as well as from the medical standpoint and has made free use of the works of Dr. Francis Heckel and William Wadd, even including some of the latter's interesting old illustrations.

In the chapter on the "Tributaries of Obesity" appear many keen passages like the following:

"There are two kinds of obesity—one is alimentary in origin; the other is endocrine in origin. There are several types of endocrine obesity but there is only one kind of alimentary obesity and there are only two adjectives which suitably describe it—contemptible and disgusting."

"Obesity is admittedly the most consistent confederate of all the deadly diseases, both microbial and metabolic, as well as the most uncompromising enemy of recovery from accident and injury."

"A fat man has not grown fat in a single night; he has achieved his rotundity by a steady activity of his masseter muscles, sustained with grim determination over a long period of time."

Having considered the causes of obesity, the second chapter deals with the immediate and remote results of this condition, and this, in turn, is followed by a delightful and illuminating discussion of the fundamental differences between men and women and the bearing which these differences have upon the question of fatness in the two sexes. Briefly, he shows that man is a katabolic and woman an anabolic creature; and that, while a moderate degree of rotundity is wholly normal and excusable in a woman, an equal degree of corpulence is a disgrace and an abnormality in a man.

A long and thoughtful chapter is devoted to the part played by the endocrines in the production of obesity.

The final chapter considers treatment and is a refreshing departure from the stereotyped and banal suggestions all-too-commonly found in places where one has a right to expect something better.

The author shows that, because of the fundamental differences between males and females, the treatment of obesity in the two sexes should be radically different. He

suggests that, in women and in men who have been feminized by their fat, a period of rest in bed, with a low diet, should take the place of the vigorous exercise so commonly recommended to all corpulent people of both sexes; and he also explains the value of heat in the treatment of all kinds of obesity, particularly that of endocrine origin.

We have recently encountered few books, of any description, so pleasingly written, so interesting and so full of available information. The style is sufficiently free from technicalities as to make it understandable by an intelligent layman, and at the same time it contains facts and logical suggestions which should be known to every physician, no matter what kind of work he is doing.

We cordially recommend this book to every one of our readers, without exception.

JORDAN & KINDRED: EMBRYOLOGY

A TEXTBOOK OF EMBRYOLOGY. By Harvey Ernest Jordan, A.M., Ph. D., Professor of Histology and Embryology, University of Virginia, and James Ernest Kindred, M.A., Ph.D., Associate Professor of Histology and Embryology, University of Virginia. With Frontispiece, 471 Text Illustrations and 33 Plates. New York and London: D. Appleton and Company. 1926. Price \$7.00.

The science of embryology can be so presented as to be very dry and uninteresting, or in such a manner as to excite keen enthusiasm. The authors of this modern textbook have achieved the latter result.

This volume is the outgrowth of 18 years of teaching embryology at the University of Virginia, during which a successful effort was made to arouse and hold the interest of the students, to stimulate the use of the reasoning faculty and to present such fundamental knowledge as is necessary for effective medical training.

So far as possible, human embryology has been emphasized, rather than that of the lower animals, and the comparative material has been correlated according to the principle of genetic recapitulation.

As the authors have found several subjects, outside the strict limits of morphology, to be useful and interesting to students, they have included chapters on sex determination, twinning, eugenics, teratology and other practical applications of the data set forth.

In the last paragraph of the excellent chapter on sex determination appears this significant statement: "Maleness means preponderant proliferative activity; femaleness storage activity.... Among the higher metazoa, the cells of the male gonad are characterized by great proliferative activity;

those of the female gonad by growth. On this simple basis the possibility of sex reversal by the operation of environmental factors becomes intelligible."

An unique feature of the book is the addition of a separate section on laboratory work, in which directions are given for the study of sections, together with 28 plates showing sections of embryos at various stages of development. With this material at hand, any physician whose early training in embryology has been meager can supply the deficiency.

As an example of the thoroughness with which the subject is treated, 120 pages are devoted to the development of the nervous system, as compared with 55 pages on the same subject in another recent textbook.

The illustrations are a source of pleasure and information. Few books are so profusely illustrated as this one, and many of the pictures are in several colors, to facilitate tracing the relations of structures as they develop.

Physically, the volume leaves little to be desired. The paper is excellent; the type clear and well spaced; the index adequate (42 pages, 2 columns to the page); and the binding dignified and substantial.

Exceptional clearness of presentation and logical coordination of the facts make this work especially valuable for students and for practitioners who are eager to keep themselves soundly informed along the lines of the fundamental sciences of medicine.

SHERRILL: PERITONITIS

PERITONITIS. By J. Garland Sherrill, M.D., F.A.C.S., Formerly Professor of Surgery, University of Louisville. New York and London: D. Appleton and Co. 1925. Price \$6.00.

Every surgeon interested in diseases of the peritoneum will find in this octavo volume of nearly 400 pages a wealth of material which has been gathered together by the distinguished Louisville surgeon. As a matter of fact the title of "Peritonitis" is not completely indicative of the contents, for Colonel Sherrill has not only discussed all phases of peritonitis, including treatment, but has devoted a large chapter to tumors of the peritoneum.

Beginning with the anatomy and embryology of the peritoneum, Sherrill takes up the physiology and physiologic pathology in a manner which is unquestionably masterly because it is painstaking and exhaustive. The literature on this section alone amounts to 180 American and foreign titles.

He follows this chapter with one on wounds and wound treatment which is of practical interest to the military as well as the civilian surgeon. The section on stab wounds is especially well written. The following chapter on Examination is practical.

The main part of the book is, of course, devoted to the character, diagnosis, prognosis and treatment of the different forms of acute and chronic peritonitis, and is doubtless the last word on this dreaded affection, but the fact that there is a special chapter on a number of conditions which

contribute to the development of peritonitis at once lifts the work from the frame of a monograph, announced as such by the publishers, because in reality it is a scientific yet practical and exhaustive essay. Sherrill is entitled to praise because the work betrays a finely developed scholarship which reflects credit on American surgical literature.

G. M. B.

ROBBINS: TREATMENT OF STAMMERING

STAMMERING AND ITS TREATMENT. By Samuel D. Robbins, A.B., A.M. (Harvard), Director, Boston Stammerers' Institute; Member American Psychological Association; Fellow American Association for the Advancement of Science. Boston: Boston Stammerers' Institute. 1926. Price \$2.00.

A pocket-size book of instructions for adult or adolescent stammerers to use in keeping up their individual work after taking a course of instruction in a school.

The treatment of stammering by mail is highly unsatisfactory but this little manual ought to do as well as any correspondence course.

COLLINS: INSOMNIA

SLEEP AND THE SLEEPLESS. Simple Rules for Overcoming Insomnia. By Joseph Collins, M.D., Physician to the Neurological Institute of New York. New York: The Macmillan Company. 1926. Price \$1.50.

A book for the layman who has difficulty in obtaining enough sleep to rest him and is worried about it.

This little volume contains nothing which is new to physicians and little which is unfamiliar to most intelligent persons who do any general reading at all. It is simply a compilation of well known facts on sleep and sleeplessness and sold mainly upon the literary reputation of its author, which it does not materially enhance.

Its only possible use to a doctor would be to give it to some rather unintelligent insomniac as a working manual for obtaining sleep.

STEVENS: THE PRACTICE OF MEDICINE

THE PRACTICE OF MEDICINE. By A. A. Stevens, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Second Edition, Entirely Reset. Philadelphia and London: W. B. Saunders Company. 1926. Price \$7.50.

This is a textbook of 1127 pages and undoubtedly is one of the best up-to-date works on internal medicine. The well-known author was a pupil of Osler, to whom the book is dedicated, but contrary to the therapeutic nihilism characteristic of the writings of that great, lamented clinician, the physician seeking advice how properly to treat internal diseases will find in Stevens' book a safe and helpful guide.

The book is not divided into chapters and sections, as is customary in most textbooks of a similar character, but a table of contents and a carefully prepared index make this arrangement unnecessary.

Beginning with the infectious diseases, the author divides the entire text as follows: Intoxications, Food Deficiency Diseases, Disorders of Metabolism, Diseases of the Digestive System, of the Respiratory Tract, of the Circulatory System, of the Kidneys, Independent Diseases of the Blood-Forming Organs and the Anemias, The Hemorrhagic Diseases, Diseases of the Spleen, of the Ductless Glands, of the Joints and Bones, of the Muscles and Myopathies without obvious changes in the Nervous System, Diseases of the Nervous System and, finally, Disorders due to Excessive Heat, which last has but one affection: Heat Stroke.

We see from the titles alone that Stevens has adopted a logical classification of his material. Each disease, as far as possible, is taken up under such sub-heads as Definition, History, Etiology, Morbid Anatomy, Diagnosis and Treatment. Prophylaxis is not neglected and wherever necessary special phases, such as incidence or the character of the causative bacteria and their dissemination, are discussed briefly but sufficiently so to furnish all needed information.

The text is handled in masterly fashion and betrays an experienced clinician who knows his subject from alpha to omega and who does not need to paste together twelve other books in order to create a new one as, unfortunately, is the case with a number of so-called textbooks.

Perhaps the author may be criticized for having omitted the technics of the laboratory tests to aid in diagnosis, though this is, of course, a matter of his discretion and decision, but the general practitioner would be glad to have brief but authoritative directions how to conduct stomach analyses, urinary analysis, etc. in one volume.

The author deserves special commendation for having given us a complete description of all disease, even those rare ones which are seen only in the far Orient and in tropical countries.

We have in the present volume a work which no internist or general practitioner can afford to miss.

G. M. B.

COOPER: REINCARNATION

REINCARNATION THE HOPE OF THE WORLD.
By The Rt. Rev. Irving S. Cooper, Regional Bishop of the Liberal Catholic Church for the U. S. A. Second Edition.
Chicago: The Theosophical Press, 826 Oakdale Ave. 1927. Price \$1.25.

At the present time about two-thirds of the world's inhabitants are as sure that they have lived here before and will live here again as they are that they are here now. In fact, the Christian religion is the only great world-religion that does not embody that idea as a part of its orthodox teachings—and Christianity included re-

incarnation among its accepted beliefs up to 500 A. D.

In this small book, a sane and sensible man has put the subject in such a clear and simple light that anyone can here find out what it is all about and decide whether he needs the idea to round out his philosophy of life and make it hold water.

There has been so much uninformed talk and wild superstition connected with this subject that it is a relief to hear reincarnation simply defined as "A plan whereby imperishable conscious beings are supplied with physical bodies appropriate to their stage of growth, through which they can come in contact with the lessons of physical life."

The author begins by calling attention to the obvious fact that none of the explanations current in Christendom are adequate to account for the gross inequalities in endowment, environment and opportunity which we see all around us every day, and by showing that the despairing attitude of many people today is the direct outcome of this lack of a reasonable explanation of the conditions of life.

He then sets forth the meaning, mechanism and proofs of reincarnation and finishes by showing how this philosophical doctrine furnishes an adequate and reasonable answer to many of the questions with which men's minds are now so much disturbed.

The man who is wholly satisfied with the religious and philosophical basis of his life, as it stands, has no need to study a book of this kind. Among the large numbers who are not wholly satisfied, there will be a good many who will, no doubt, find in books like this a key which will unlock a multitude of doors for them and open up inspiring new vistas.

So, for the seekers, it is worth trying. The cost in time and money is slight, in any case, and the profits may prove to be enormous.

KENNEDY: SURGERY OF JOSEPH PRICE HOSPITAL

PRACTICAL SURGERY OF THE JOSEPH PRICE HOSPITAL. *By James William Kennedy, M.D., F.A.C.S. Philadelphia: F. A. Davis Co., 1926. Price \$10.00.*

Those who have been so fortunate as to see the late Dr. Joseph Price operate, will find in this volume a work of inestimable value. But every surgeon who desires to become familiar with the original ideas of an originator in modern surgery will read this volume with great benefit, even though the hospital is no longer the shop of a great master.

The author is right when he refers to the present volume as an incomplete work and too modest when he alludes to it as an illogical work; for into over 800 pages he has crowded a wealth of material, the clinical value of which is greatly enhanced by a number of well-executed half-tone illustrations, depicting operative procedures, and one wishes that there might be more of it.

After a brief biographic sketch of Joseph Price, Kennedy opens his surgical discussion with vaginal hysterectomy; takes up appendicitis; follows that interesting subject with ectopic gestation; and goes on, covering nearly the entire gamut of gynecologic and abdominal surgery. Special chapters are devoted to surgical shock; ligature and suture material; administration of ether; and surgical nursing. The last—the 27th—chapter is devoted to epigrammatic sayings by Joseph Price, all of which are highly instructive because they express in a terse manner volumes of surgical thought and teaching.

It is to be regretted that the author has not secured a good editor to revise his manuscript, for the diction quite often is not good. The word "same," which is tabooed by the better class of commercial houses, is resorted to very often to avoid tautology. Finally, the largest part of the work is presented in the first person, the letter "I" being seen too many times, often even in two consecutive sentences on the same subject.

With this remedied, the work would be an ideal contribution to contemporary gynecologic and abdominal surgery.

G. M. B.

CARLETON: HISTOLOGIC TECHNIC

HISTOLOGICAL TECHNIQUE. For Normal Tissues, Morbid Changes and the Identification of Parasites. By H. M. Carleton, M.A., B.Sc., D. Phil., University Lecturer in Histology, Oxford. Chapters VII and VIII in Collaboration with Frederic Haynes, B. A., Demonstrator of Histology. London & New York: Humphrey Milford, Oxford University Press. 1926. Price \$5.00.

An excellent handbook for laboratory workers in normal and pathologic histology.

Part 1 is a study of the nature and peculiarities of tissue cells; Part 2 describes the fundamental processes of fixation, embedding, section cutting and staining specimens; Parts 3 and 4 provide special methods for handling various tissues; Part 5 outlines the criteria for identifying morbid changes and parasites in the tissues.

A handy volume, well made, well indexed and well suited to the needs of pathologists, particularly beginners in this line of work.

DUPLAY: DOCTORS

OUR DOCTORS. A Novel of To-day. By Maurice Duplay. Translation and Preface by Joseph Collins. New York and London: Harper & Brothers. 1926. Price \$2.00.

A book about doctors, by the son of a doctor and translated by an American doctor who has achieved fame by "Looking at Literature" and other things very cleverly.

As a picture of the lives of physicians it offers nothing new. There are great scientists and honest doctors in France as everywhere; as well as money-grabbers, quacks and abortionists. The latter types, however, make spicier stories.

As a story it is rather tiresome. If one wants a "doctor story" he will find Mary Roberts Rinehart's "K" more entertaining and just as probable. Some readers will find the French frankness in dealing with sexual matters a reason for enjoyment, though, of course, the juiciest bits had to be left out of the English translation.

On the whole, one wonders if the book was worth writing or translating and doubts that it is worth reading, unless one has more time on his hands than he knows how to occupy.

GIBSON: THE HEART

THE HEART. By Alexander George Gibson, D.M., F.R.C.P. (Lond.), Physician to the Radcliffe infirmary. London & New York: Humphrey Milford, Oxford University Press. 1926. Price \$1.50.

A neat and pleasing little summary or compend of heart disease, based upon modern conceptions, intended for medical students and for practitioners who desire to refresh their memories on some point when time does not serve for more extended reading.

The book is thoroughly well made, small enough to fit the pocket and the material it contains is up to date and reliable.

An excellent example of books of its class.

HILTON: GOLF

MODERN GOLF. By Harold H. Hilton. New York: The Macmillan Company. 1926. Price \$1.00.

Now that the season has arrived when the golf devotee begins putting on the parlor rug and practicing a few swings in the back yard, a book on the subject may prove enticing.

This little volume is not a "home instructor," in any sense of the word. It deals with the philosophy and the history of the noble Scottish game. Various chapters discuss the value of practice, the part played by strength and temperament, the physics and psychology of clubs, the playing of various shots and the like. Throughout it is the British viewpoint which is shown us.

A book for the seasoned and enthusiastic golfer and one which will not (unfortunately, perhaps) appeal strongly to the younger and less experienced members of the fraternity.

STEDMAN: MEDICAL DICTIONARY

A PRACTICAL MEDICAL DICTIONARY. By Thomas Lathrop Stedman, A.M., M.D. Ninth Revised Edition. Illustrated. New York: William Wood & Co., 1926. Price \$7.50.

The popularity of this medical dictionary is evidenced by the fact that in a comparatively brief period eight editions have been exhausted.

As in previous editions, an effort has been made to define every term used in medicine

and the allied sciences carefully, giving the derivation and pronunciation in a manner to leave no doubt. Tables, lists of drugs, illustrations of instruments and anatomic peculiarities are helpful additions.

Of special help is an appendix containing exhaustive discussion of weights and measures, symbols, stethoscopic abbreviations, comparative temperature and barometer scales, chemical elements, etc.

On the whole this is an excellent medical dictionary which should become the working tool of every scientific practitioner of medicine.

G. M. B.

CATHCART: DISEASES OF THE EAR

HUNTER TOD'S DISEASES OF THE EAR. *Revised and Largely Re-Written by George C. Cathcart, M.A., M.D., Consulting Surgeon to the Throat Hospital, Golden Square; Late Member of the Special Aural Board, Ministry of Pensions. Second Edition.* London & New York: Humphrey Milford, Oxford University Press. 1926. Price \$3.50.

Hunter Tod's manual of ear diseases was first published twenty years ago and went through four large editions unchanged, testifying to its popularity. At the time of his death he was planning its revision. This has been carried out by his assistant, who has done his best to bring the matter up to date and to embody all the recent advances in this specialty.

This is a well-made, brief and practical handbook of otology, intended primarily for students and practitioners, to whom it can be heartily recommended. Experienced otologists may also find helpful suggestions and can use it for ready reference when pressed for time.

SMITH: LABORATORY TESTS

HEWAT'S EXAMINATION OF THE URINE AND OTHER CLINICAL SIDEROOM METHODS. *Revised and Enlarged by G. L. Malcolm-Smith, M.B., Ch.B., F.R.C.P.Ed., Clinical Registrar, Longmore Hospital, Edinburgh. Seventh Edition.* Edinburgh: E. & S. Livingstone. New York: Paul B. Hoeber, Inc. 1926. Price \$1.50.

A vest-pocket manual of the more ordinary laboratory tests (the book is 3x5x½ inches), containing, in addition to uranalysis, as indicated by the title, chapters on

renal efficiency tests and the examination of pus, blood, sputum, gastric contents, feces and cerebrospinal fluid.

By no means a textbook on laboratory practice, but a very practical and helpful little handbook for the physician who does his routine laboratory work for himself.

MACKENZIE: HEART AFFECTIONS

PRINCIPLES OF DIAGNOSIS AND TREATMENT IN HEART AFFECTIONS. *By Sir James Mackenzie, M.D., F.R.C.P., LL.D. Ab. & Ed., F.C.C.P.I. (Hon.), Director St. Andrews Institute for Clinical Research; and James Orr, M.B., Ch.B., Physician to the St. Andrews Institute for Clinical Research. Third Edition.* London & New York: Humphrey Milford, Oxford University Press. 1926. Price \$3.50.

Dr. Mackenzie was one of the greatest cardiologists and most original thinkers who ever adorned the medical profession, and his works on heart disease are classics with which all physicians should be familiar.

On page 883 of the December, 1925, issue of CLIN. MED. we reviewed the 4th edition of his "Diseases of the Heart", and what was there said applies with equal force to the present volume.

This, the third edition of the present work, has been gone over by Dr. Mackenzie's associate, Mr. James Orr, and so rearranged as to embody Mackenzie's later teachings.

The four parts of the book deal with: Heart Failure, Affections of the Regulating Mechanism of the Heart, Other Affections, and Prognosis and Treatment. In all departments the information obtained by means of the electrocardiograph and the polygraph are correlated with clinical signs and symptoms, so that the two supplement each other to give a clear picture of the conditions present.

The style, throughout, is the graphic and lucid presentation of the trained and gifted teacher expounding a subject with which he is wholly familiar to an eager class, so that it is smooth, easy and delightful reading which teaches without effort.

Physically, the book comes up to the standard expected of the Oxford Publications, which is always high.

This volume should be studied by all physicians and is indispensable to those who treat cases of heart disease.

Medical News



Tribune Photo.
ALBERT FRICK, who died after 108 hours of Artificial Respiration.

ARTIFICIAL RESPIRATION FOR 108 HOURS

All records for length of time during which a patient has been kept alive by artificial respiration (except that of Dr. C. L. Green, of St. Paul, Minn., who is reported to have used such methods on a patient for 41 days, in 1898) have recently been broken in Evanston, Ill., when a young man, said to be suffering from Landry's paralysis involving the diaphragm and respiratory muscles, was supplied with air for 108 hours (4½ days) by artificial respiration, applied by his fellow employees in one of the great industrial establishments.

These volunteers worked in pairs, for 15 minutes at a time, alternately compressing and releasing the tissues of the lower throat and upper abdomen. Perfect rhythm and extreme exactness in changing the work from one pair of workers to another were required to achieve this phenomenal result.

A remarkable standard for artificial respiration has again been set and it has again been demonstrated how the good in human nature comes to the surface in an emergency, for this work was very laborious and exacting.

LABELS ON BOTTLES

Six babies died in one of the Chicago hospitals because a nurse accidentally gave them considerable quantities of what was said to be boric acid solution, thinking it was distilled water.

The Health Commissioner has now issued orders that all bottles shall be distinctly labeled and that poisonous solutions shall be kept separate from those that are non-poisonous.

It would seem almost unnecessary to warn physicians about the necessity of labeling all drugs. Let careless ones take warning!

Remember, too, that student nurses are not yet professional people, and that even graduate nurses are not supposed to assume the same responsibility as that which rests upon a physician.

NICHOLS MEDAL TO DR. ADAMS

The William H. Nichols medal for outstanding chemical contributions during the year has been awarded by the New York Section of the American Chemical Society to Dr. Roger Adams, Professor of Chemistry at the University of Illinois, for his work on the "Acids of Chaulmoogra Oil and Related Compounds".

A brief abstract of parts of Dr. Adams' address at the presentation ceremony will be found on another page of this issue.

UNITED STATES CIVIL SERVICE EXAMINATION

Application for *Junior Medical Officer* (interne) must be on file at Washington, D. C., not later than June 30, 1927.

The examination is to fill vacancies in the United States Veteran's Bureau Hospitals throughout the United States, and in positions requiring similar qualifications.

The entrance salary in the field service of the Veteran's Bureau is \$1,860 to \$2,400 a year, without allowances, or \$1,260 to \$1,860 a year with quarters, subsistence and laundry, the entrance salary within the range stated depending upon the qualifications of the appointee as shown in the examination and the duty to which assigned.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the Board of U. S. civil-service examiners at the post office or customhouse in any city.



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DR HARPER INVENTS ELECTRICAL EAR-PHONE

An electrical ear-phone so powerful that it brings distinct hearing to persons stone-deaf is being exhibited for the first time by its inventor, Dr. Charles William Harper of Boston, at 126 E. 59th St., New York City.

The ear-phone is not portable, and in its present form must be installed only in houses, theatres and elsewhere when space is available. It is as large as a radio cabinet and with its dials for regulating the intensity of amplification is suggestive of a radio set.

CONGENITAL APPENDICITIS

The *Chicago Tribune* for March 11, 1927, records the case of an infant, the first of a pair of female twins, who was born with a ruptured abdominal wall and a gangrenous appendix.

Appendectomy was performed within an hour of the child's birth and the abdomen closed, under local anesthesia. The attendants express a hope that the child will live.

MEDICAL OPENING IN CALIFORNIA

We have received information that there is a splendid opening for a well qualified and energetic physician in California, which will pay \$200 a month and living quarters.

Any interested physician should write to Dr. M. W. Fraser, Woodlake, California, for further information.

AMERICAN EPHEDRINE

Ephedrine of high quality, formerly made only in China, is now being produced in considerable quantities in the United States, so that an adequate supply of this interesting and valuable drug should, henceforth, be available at all time.

